**The London School of Economics and Political Science**

# FINANCIAL LIBERALISATION, ASYMMETRIC INFORMATION AND INFLATION

A new perspective on the Argentine financial experiment of 1977-81

Raúl Alberto Fernández

A thesis submitted to the Department of Economic History of the London School of Economics for the degree of Doctor of Philosophy, London, March 2011

## DECLARATION

I certify that the thesis I have presented for examination for the MPhil/PhD degree of the London School of Economics and Political Science is solely my own work other than where I have clearly indicated that it is the work of others (in which case the extent of any work carried out jointly by me and any other person is clearly identified in it).

The copyright of this thesis rests with the author. Quotation from it is permitted, provided that full acknowledgement is made. This thesis may not be reproduced without the prior written consent of the author.

I warrant that this authorization does not, to the best of my belief, infringe the rights of any third party.

## ABSTRACT

In the belief that the disappointing rate of growth of Argentina since the 1930s was the consequence of excessive government meddling in the economy, in the mid-1970s the military government took the decision to attempt a radical change in the development strategy: the model of industrialisation based on import substitution was replaced by one based on the conviction that faster economic growth would result if market forces were given free rein, with the State taking a back seat. The de-regulation of the repressed financial system and the opening up of the economy to the world capital markets following the neo-classical principles in vogue at that time was the cornerstone of the new model of accumulation. It was believed that this would lead to higher rates of savings and investment coupled with a more efficient allocation of resources. This study uses the new information economics approach to explain why this experiment culminated in a dramatic financial collapse and generated a severe economic downturn with long-term consequences for the country.

## ACKNOWLEDGMENTS

Like most worthwhile things in life, the completion of this thesis would not have been possible without the help and involvement of numerous people. Although I won't be able to mention everybody, I would like to express my gratitude to those who made the greatest contribution, both inside and outside the LSE. First and foremost, I would like to thank my supervisor Dr. Colin Lewis, who has supported me throughout my studies with his patience, motivation, enthusiasm and knowledge, whilst allowing me the freedom to work in my own way. His guidance was of great help in the identification of the fundamental nature of my research. I could simply not have imagined having a better supervisor for my PhD. study.

It is difficult to overstate my appreciation of those who have contributed to my research formation in economics at CEDES in Buenos Aires, where I spent four fruitful years. This dissertation has been positively influenced by much of what I learnt from Mario Damill, José María Fanelli, Roberto Frenkel and Guillermo Rozcenwurcel. The same words of gratitude are extended to Prof. Victor Bulmer-Thomas and José Miguel Albala-Bertrand of the Institute of Latin American Studies and Queen Mary and Westfield College of the University of London, and Prof. Juan Carlos Benítez, who first brought me into the world of monetary economics.

I would like to thank Roberto Alemann, Adolfo Díz, José Luis Machinea and Ricardo López-Murphy, four participants in or witnesses to the economic policies under study, for taking the time to provide me with important information in personal interviews.

In this incomplete list of acknowledgments, I cannot fail to include the names of Sergio Luna, Olli Haltia, Ernesto Piedras, Sara Gross, Leonardo Campos-Filho and Humberto Panuco for the stimulating discussions on economics and for all the fun we had during my time in London.

Anita Freeman deserves a very special thank you for her advice on many aspects of the way in which my ideas were presented.

I cannot close without saying how grateful I am to my wife and children for their endless patience, support and encouragement.

## THESIS OUTLINE

# LIST OF GRAPHS AND TABLES

Page

## *List of Graphs*

Page



***List of Tables***

## LIST OF SYMBOLS

Note:
- the variables in nominal terms are in CAPITAL letters; those in real terms are in small letters
- the superscripts "s" and "d" mean 'supply' of and 'demand' for assets respectively
- the superscript "i" means agent/sector and; the subscripts "t" and "t-1" mean a point in time.
- (+) means assets and; (-) means liabilities.

| | | | |
|---|---|---|---|
| $NW_t$ | net worth | $FW_t$ | net financial wealth |
| $A_t$ | stock of total assets | $L_t$ | stock of liabilities |
| $F_t$ | stock of financial assets | $K_t$ | stock of physical assets |
| $NFW_t$ | net financial worth | $SUP^i_t$ | financial surplus/deficit |
| $Y_d$ | total disposable income | C | current consumption |
| PI | physical investment of the private sector | $S^i$ | total saving |
| X | exports of goods and services | $I^i$ | total investment |
| Z | net financial payments received from abroad | T | government revenues |
| G | public expenditures in current consumption | $\Delta X$ | change in the variable 'X' |
| GI | public expenditures in capital goods | PS | surplus/deficit of the private sector |
| M | imports of goods and services | RWS | surplus/deficit of the foreign sector |
| GS | surplus/deficit of the government sector | | |

*Net Financial Wealth:*

| | | | |
|---|---|---|---|
| fwp | private sector | fwf | financial sector |
| fwg | government | fwrw | foreign sector |
| fwcb | Central Bank | | |

*Financial Assets (stock variables):*

| | |
|---|---|
| mon | currency in circulation |
| res | banking reserves in the Central Bank |
| ccbg | credits granted by the Central Bank to the government |
| dgcb | deposits in local currency of the government in the Central Bank |
| red | credits granted by the Central Bank to the financial system |
| sad | saving deposits in local currency |
| tip | time deposits in local currency |
| cred | banking credit in local currency |
| bon | public bond in local currency |
| jinv | international reserves in the Central Bank |
| jdep | deposits nominated in dollar |
| jcred | credits nominated in dollar |
| jbon | public bond nominated in dollar |
| totass | total assets and; totliab total liabilities |

***''Neither a borrower nor a lender be;***
***For loan oft loses both itself and friend,***
***And borrowing dulls the edge of husbandry''***

***(Shakespeare, Polonius, Hamlet, Act I, Scene III)***

***''No people in the world like monetary experiments***
***more than the people of Argentina''***

***(Banker's Magazine, London, 1899)***

***To Daniela, Belén and Martín, with love***

# CHAPTER I

# GENERAL INTRODUCTION

## I. GENERAL INTRODUCTION

Argentina is widely considered to be a prime example of a nation which has never fulfilled its economic potential. Nobel Laureate Simon Kuznets once said that there were four categories of countries: developed, underdeveloped, Japan and Argentina[1]. In 1930, Japan ranked twenty-third among world economies and Argentina - with a GDP per capita 2.3 times greater than the Japanese - was tenth and was generally regarded as a country with a bright future. In the early 1940s, another Nobel Prize winner, Paul Samuelson predicted that based on the abundance of natural resources, benign climate and its rich human capital, Argentina was a country destined to become an economic superpower[2]. However, by the mid-1970s, the country's position in the world rankings had dropped to twentieth and Japan, despite its extremely limited natural resources, had jumped to tenth place. In the same period, Australia and Canada, those countries most similar to Argentina in terms of geography, population density, natural resources and with a comparable level of development in the 1930s, had achieved an increase in their levels of GDP per capita which was 44% and 74% respectively higher than that of Argentina. A similar pattern is observed when looking at the evolution of total output: GDP had increased in Australia by 39% and in Canada by 71% more than in Argentina[3].

This international comparison shows why Argentina is considered a '*rara avis*' in terms of growth record. In most previous studies of development, the common view that explains the poor economic performance of this country is that it was due to excessive and flawed State intervention in the economy - direct State participation and badly designed macro-economic policies and regulations - applied to encourage the process of industrialisation combined with repeated political upheavals. This may well be the case, between 1930 and 1975 Argentina achieved a low rate of aggregate and per capita growth (2.9% and

---

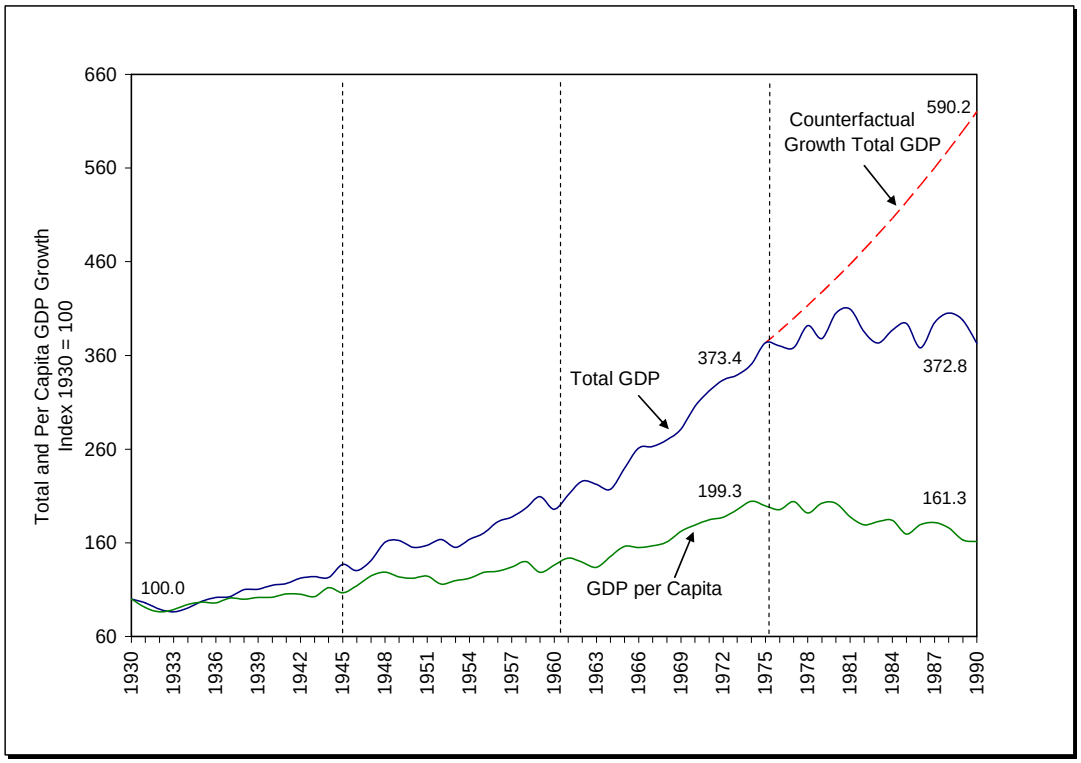
[1] Quoted by Iván Petrella, ''El fin de los errores groseros'', La Nación, 24 July 2009. *www. lanacion. com.ar/nota.asp/nota_id=1154185*

[2] Quoted by Javier Millet ''Argentina y su Pasado'', Digital Article. *www. espahoy.com/ ensayos/ argentina y_su_ pasado*, 2008

[3] Own estimation based on data obtained from A. Maddison, Monitoring the World Economy 1820-1992, OECD, 1995, pp. 180-81; 188-89; 194-95 and 202-03

1.09% per annum on average respectively) with repeated cycles of expansion and recession. Nonetheless, during this period, despite the general lack of dynamism of the economy - a fact which has attracted the attention of many academics worldwide - the overall rate of growth was positive, albeit modest, as can be observed in the graph below.

Graph I.1
Total and Per Capita GDP Growth, 1930 - 1990
(Index 1930=100)




Source: own construction based on data obtained from Angus Maddison, Op. Cit., 1995, pp. 188-89 and 202-03 [4].

However, when one looks at the evolution of the growth trend of Argentina what is most striking is that, between 1976 and 1990, the country was *not* even able to sustain the disappointing pace of growth of the previous forty-five years; that is, the average rate of growth of the period 1930-75. This can be seen in the graph above which depicts the

[4] Updated data of these statistic series up to 2003 can be found in: *www.ggdc.net/_maddison/Historical.../horizontal-file_03-2007.xls*

evolution of the level of aggregate output (index 1930=100) between 1930 and 1990, divided into four sub-periods of fifteen years each. In the first three sub-periods, (1931-45), (1946-60) and (1961-75), Argentina managed to grow at a rate of 2.2%, 2.5% and 3.9% per annum on average respectively. However, right at the beginning of the last sub-period (1976-90), the growth pattern of the previous years came to an abrupt end and the country entered into what later turned out to be its longest ever period of economic stagnation: total output dropped by 0.16% (0.01% per annum on average) and GDP per capita fell by 19% from US$ 8,132 in 1975 to US$ 6,581 in 1990; that is, to the level of 1968, twenty two years earlier.

In a period of fifteen years (1976-90) in which Argentina did not grow at all, the rest of world experienced an important economic expansion (around 45% of their GDP) and countries like Australia and Canada registered growth of 60% and 61% respectively. As a result, Argentina dropped from twentieth to twenty-sixth position in the world ranking, whereas Japan - with a GDP per capita 2.8 times greater than the Argentine - reached third place[5]. A counterfactual analysis of this long period of recession is no less striking: if Argentina had continued growing at the average rate of the sub-period 1961-75 (3.9% per annum), by 1990, the level of GDP would have been 58% higher - as shown by the dotted line of the graph above - and the GDP per capita would have been 84% higher (US$ 12,100)[6]. It should be stressed that the problems afflicting Argentina during these years cannot be attributed primarily to external factors since the major Latin American countries did not experience such a dramatic economic downturn. On the contrary, Brazil grew by 63%, Chile 90% and Mexico 62%.

The natural question which arises is, therefore, what were the economic factors which brought about this sudden change in the growth pattern of Argentina in the mid-1970s and generated the longest period of economic stagnation in the country's history?. In

[5] Data obtained from A. Maddison, Op. Cit., 1995, pp.

[6] A counterfactual analysis which shows that Argentina could have experienced a similar growth rates to Australia and Canada over the period 1913-84 had different domestic economic policies been applied is presented in D. Cavallo, R. Domenech and Y. Mundlak, ''La Argentina que pudo ser. Los costos de la repression económica'', Ed. Manantial, 1989.

other words, what was at the root of a period of recession which would surprise even those accustomed to the economic under-performance for which Argentina is widely-known? The aim of this study is to address these questions and, in this way, fill a gap which is also surprising: the lack of thorough analyses of this subject in the literature.

The hypothesis of this dissertation is that the financial de-regulation experiment of the late 1970s, based on a narrow theory of financial markets, which failed to take into account the effects of high inflation and asymmetric information, was the fundamental cause of what can be called the 'Great Stagnation' of Argentina. The badly designed liberalisation of the financial system combined with the opening-up of the economy to world markets were key factors in the generation of a *new* type of macro-economic disadjustment, which caused a severe economic downturn and later restricted the country's ability to resume growth for a lengthy period of time.

In order to test this hypothesis, it was necessary to undertake an in-depth analysis of both the macro-financial structure and the borrower-lender relationship during the period of financial liberalisation (1977-81). This is the first time that this kind of analysis has been carried out to study the roots of the Argentine financial collapse of 1980-81. Previous works have looked at the banking sector in isolation and have *not* examined the full extent of the macro- and micro- economic interactions between the financial structure and the real side of the economy. These analyses also failed to take into account the problems of imperfect and asymmetric information exacerbated by high inflation and their consequences for the liberalised financial system. This dissertation is original for both the theoretical and the analytical approach used. With regard to the former, for the first time the Argentine experiment in financial liberalisation, based on neo-classical principles, has been examined in the light of the *new* theory of economic information. What also makes this study ground-breaking is the analytical framework applied, a matrix of assets and liabilities, which allows both a *quantitative* and *qualitative* evaluation of the financial structure of Argentina over the period 1976-81. This matrix incorporates the effects of the interactions of the real with the financial side

of the economy, stock with flow variables and the impact of high inflation on the behaviour of micro-economic units (borrowers and lenders) as well as that of the new institutional framework.

One major obstacle which had to be overcome was the lack of *quantitative* information about the portfolio composition of the economic sectors and the financial relationships between them (Tables of Flow of Funds and Financial Wealth by Economic Sectors). In other countries, including some in Europe and the United States of America, this data forms part of the financial statistics officially issued by the monetary authority. In Argentina, however, this information is *not* in the public domain, although the raw statistics (balance sheets of the Central Bank and of the financial system as a whole) necessary to build up a picture of the macro-financial structure can be obtained. From this basic information and using a macro-financial framework, it was possible to produce *new* data to calculate the composition, distribution and evolution - stocks and flows - of the financial wealth of the economic sectors of Argentina, an essential component of an empirical study of this nature. Another factor which made it difficult to evaluate the extent and seriousness of the financial crisis of 1980 was the lack of information about the proportion of non-performing loans in banks. This was due to a defective regulation based on the philosophy prevailing at that time of the 'free functioning' of the financial markets, which did not require banks to inform the Central Bank about the state of their loan portfolios. This problem was overcome by using the financial data produced (Financial Wealth Tables) and the balance sheets of a sample of firms to estimate the extent of the problems of financial fragility and the gravity of distress borrowing on the part of bank debtors.

After this brief general introduction, the dissertation is organised as follows: Chapter II explains the theoretical and methodological approaches to be used for the study of the Argentine financial structure and its interaction with the real side of the economy over the period 1977-81. Chapter III provides the historical background for the new model of economic development adopted after the military coup of March 1976 and gives details

of the policy-reforms, the short-term macro-economic dynamic as well as the structural transformation which ensued. The rest of the work focuses on the financial side of the economy, looking at the borrower-lender relationship from both a macro- and a micro-economic point of view. In Chapter IV, there is a macro-economic examination of the effects of the financial liberation of mid-1977 on the country's financial structure. It includes an assessment of the policy, economic and institutional factors responsible for the rapid process of financial deepening (credit boom), which culminated in a far-reaching banking crisis at the beginning of 1980. From a micro-economic or sectoral perspective, Chapter V deals with the banks' behaviour during the period of financial liberalisation and tries to understand *why* they charged very high real lending rates and financial spreads; and *what* effects these had on the credit risk positions of the financial intermediaries. The model of interest rate decision developed in this chapter is used to identify cases of excessive risk taking and speculative behaviour by some banking institutions and their effects on the aggregate financial system over the years 1977-81. In Chapter VI, the sectoral assessment of the debtor-creditor relationship is complemented by looking at the evolution of the financial health of the non-financial private sector (bank borrowers) and its consequences for both the financial system and for the country as a whole. Finally, the general conclusions are summarised in Chapter VII.

# CHAPTER II

# FINANCIAL MARKETS AND ECONOMIC ACTIVITY

## II.1 INTRODUCTION

This Chapter presents the theoretical and methodological approaches which will be used throughout the dissertation for the study of financial markets and their interaction with the real side of the economy in Argentina over the years 1977-81. It begins by reviewing the main schools of thought in connection with financial factors in the process of capital accumulation. This helps to identify the evolution of the 'state of the art' in understanding the full dimension of the nature and hence, the roles that the financial markets play in the economy. In addition, the theoretical foundations of the banking reform implemented by Argentina in mid-1977 are considered in depth. These include financial repression and the policy of financial liberalisation as a way of boosting the saving and investment rates and improving resource allocation in order to speed up the rate of growth.

The Chapter aims at demarcating the theoretical approach to be used in the evaluation of the liberalisation experiment of the country under study. In this regard, the advances in both the 'new economy of information and 'new institutional economics' are considered in order to explain the type of *market* failures which are widespread in the economy, and which have been overlooked by the neo-classicals. This evaluation is three-fold: one, to examine the cornerstones of the theory of imperfect information and its main contribution to a better understanding of capital markets; two, to contest the theory that freeing financial markets will encourage economic growth and; three, to establish the bases and concepts which will be applied thereafter in the analysis.

The second half of the Chapter is devoted to the methodology for the empirical study. A macro-financial framework has been constructed taking into consideration the main features of the financial structure of Argentina and the availability of data. In order to have a practical tool, this financial structure is presented in one single table representing all the assets and liabilities held by the different categories of economic agents into which the Argentine economy was divided.

The Chapter is organised as follows: section two focuses on the main theories with regard to financial factors in economic growth. The rest of the work sets out the methodology. The building blocks of a consistent macro-financial framework and of the dis-aggregation procedure over *assets*, *time* and *agents* needed for the empirical assessment is shown in section three. A matrix of assets and liabilities for Argentina is developed in section four. It presents the methodology for the analysis of the composition, distribution and changes of portfolio and of the net worth of the selected economic units. This is completed with the 'supply of' and 'demand for' the whole spectrum of financial assets in order to evaluate the interdependency between individuals' decisions in connection with portfolio allocation. Section five expands on the financial and output interactions by considering the *necessary* and the *sufficient* conditions for spill over effects in real and financial markets derived from a disequilibrium initiated in one of the two sides of the economy. Finally, conclusions are summarised in section six.

## II.2 FINANCIAL FACTORS IN ECONOMIC GROWTH

The central issues in economic growth are the generation and mobilisation of savings and the efficient allocation of these funds to productive activities (physical capital), to research and development (technological innovation) and to education and training of the labour force (human capital)[1]. Financial markets are at the hub of this process. This was recognised long ago by both admirers and detractors of capitalism yet, the nature and, therefore, the function of capital markets in the economy has been less well understood[2]. This helps to explain the different approaches which exist in connection with the role of financial markets in output determination. An evaluation of the main schools of thought will be instrumental in appreciating the progress of knowledge - state of the art - made in relation to the interaction between real and financial markets in the process of capital accumulation. In addition, this will be helpful for examining the hypothesis of financial liberalisation as a way of promoting growth which Argentina applied in 1977-81 as well as, for defining the approach and selecting the key literature to be used throughout the study.

For the 'classics', financial markets perform the function of transferring resources from the units who save to those who invest. For this school, the rate of saving is the central factor determining the pace and level of overall activity. Thus, high rates of saving generate an ample supply of loanable funds in the market for credits and this, in turn, provides the means for the growth of investment. In the same vein, low rates of saving give rise to a limited amount of loans and high interest rates which ultimately discourage investment.

---

[1] The importance of both 'technological innovation' and 'human capital' for economic growth has now been widely accepted. See R. R. Nelson and S. G. Winter An Evolutionary Theory of Economic Change, 1982; R. R. Nelson, ''Why do Firms Differ, and How does Matter?'', Strategic Journal of Management, vol. 12, 1991 and; N. Stokey, ''Human Capital, Product Quality and Growth'', Quarterly Journal of Economics, 56, 2, May 1991, pp. 587-616.

[2] John Locke, Adam Smith, Jeremy Bentham and Joseph Schumpeter among other writers stressed the importance of sound money and unfettered financial intermediation. Karl Marx and Rudolf Hilferding are those who claimed that the financial system has pernicious effects on capitalism. J. Bentham, Defense of Usury., 1787; A. Smith, An Inquiry into the Nature and Causes of the Wealth of Nations, 1776; J. A. Schumpeter, The Theory of Economic Development: An Inquiry into Profits, Capital, Credit, Interest, and Business Cycle, 1934; R. Hilferding, Finance Capital: A Study of the Latest Phase of Capitalist Development, 1910.

This indicates that the supply of, and demand for, funds in the credit markets coincide at a certain interest rate and, therefore, the macro-economic equilibrium is guaranteed. Accordingly, for this approach, financial factors play a passive role in the determination of output: changes in the rate of growth are only the result of an alteration in the country's rate of saving, or as Adam Smith stated, the 'thrift' of the nation. James Meade has characterised this view neatly as: "a dog called *saving* wagged its tail labelled *investment*"[3].

With the advent of Keynes' *General Theory*, attention turned to understanding the mechanisms of market adjustment to a macro-economic disequilibrium and, to how the system could return to a position of full employment. One fundamental contribution of this author was the rejection of the idea that the rate of investment is determined by the rate of saving in the market for credits. That is, a firm's investment decisions are decided on the basis of their profit expectations and the rate of interest at which the money can be borrowed, is only one and ***not*** necessarily the main variable in determining the investor's decisions. More importantly, Keynes showed that any growth in activity caused by higher investment spending and propagated through the multiplier effect, will increase total income and thus the amount of saving[4]. This is contrary to the pre-Keynesian mainstream analysis with regard to the cause-effect relationship in the process of capital accumulation. Indeed, now saving is a passive variable which depends on total income and this in turn, fluctuates according to the level of investment. As mentioned before, the investors' view of the prospects for the economy in general, or what Keynes called 'animal spirits' ultimately, shape the aggregate rate of investment and the level of activity[5]. This

---

[3] Quoted in P. Bridel, Cambridge Monetary Thoughts: Development of Saving-Investment Analysis from Marshall to Keynes, 1987, p. 161.

[4] The multiplier effect arises because the propensity to consume and to save are both greater than zero and add up to one. Thus, the amounts of consumption and saving increase with the level of income and then, the expansion in consumption and saving leads to further increase in output. See Chapter 10 of the *General Theory.* J. M. Keynes The General Theory of Employment, Interest and Money, 1936, pp. 107-120.

[5] The driving forces behind the investment decisions - the marginal efficiency of capital - are the central factors which explain the fluctuation in the level of activity. J. M. Keynes, Op. Cit., Chapters 11 and 12 pp. 123-143.

was stated by Joan Robinson as: “the central thesis of the *General Theory* that firms are free, within wide limits, to accumulate as they please, and that the rate of saving of the economy as a whole accommodates itself to the rate of investment that they decree“[6]. If one goes back to Meade: “a dog called *investment* wagged its tail labelled *saving*”[7].

This argument is consistent as increases in investment do generate, via the multiplier, the amount of saving needed to finance a given expansion in aggregate expenditure. The issue to be explained though is: how the increase in investment in the interregnum period is financed before the multiplier generates the necessary amount of saving. The response of Keynes was that the financial system as a whole - banking institutions and the central bank - should provide the means for financing the growth in investment regardless of the preceding pattern of saving flows: “the banks hold the key position in the transition from a lower to a higher scale of activity“[8]. They are responsible for temporarily reducing the level of liquidity, and for encouraging credit growth to match the increase in the demand for funds from borrowers. The rationale behind this is that it is in the interest of banks to do more business and, that the banks’ liquidity will be restored after the multiplier process has produced an increase in saving compatible with the new investment level.

Nevertheless, the fundamental contribution of Keynes with regard to the interaction of real and financial markets in the process of capital accumulation is essentially the *problem of coordinating* saving and investment decisions[9]. This is explained by the liquidity preference theory proposed, which shows that in a world with only two assets (money and securities), the rate of interest is determined by the supply of, and demand for, money and ***not*** in the credit market, as indicated by the prevailing paradigm[10]. Thus, the supply of,

---

[6] J. Robinson, Essays in the Theory of Economic Growth, 1962, pp. 82-83.
[7] P. Bridel, Op. Cit., p. 161.
[8] J. M. Keynes, “The ’Ex-Ante’ Theory of the Rate of Interest“, (1938), in The Collected Writings of John Maynard Keynes, 1973, vol 14., pp. 222.
[9] A superb interpretation of this contribution is found in A. Leijonhuvud On the Keynesian Economics and the Economics of Keynes: A Study of Monetary Theory, 1967.
[10] By taking into account the Walras’ law, when the money market is in equilibrium, the security market *must* also be in equilibrium. Accordingly, the security market can be dropped out from the analysis.

and demand for, loanable funds, are no longer essential for explaining the level of output. Instead, Keynes asserted that the reason for a macro-economic disadjustment lies in the inconsistency between the rate of interest obtained in the money market and the marginal efficiency of capital due to changes in individuals' preferences for liquidity[11]. That is to say, the action of speculators, those who have incentives for holding money according to their expectations about future changes in bond prices - the inverse of the rate of interest, may end up setting a 'floor' for the interest rate: the well known phenomenon of *liquidity trap*. In this situation, there is a strong probability that the price of bonds will drop and, therefore, the demand for money for speculative motives becomes highly interest-elastic, and an increased money supply will not produce a decline in the rate of interest[12]. If this rate is higher than the expected return on investment - the marginal efficiency of capital - then, the amount of investment will decline and this, in turn, will reduce the level of income as well as the rate of planned saving. In this way, Keynes showed that an economy can reach a new position of 'equilibrium' without attaining full employment.

The Keynesian revolution produced an explosion of research in the field of macrofinance during the post-second world war years. Most of this was concerned with the transmission mechanism of policy measures, and how the government could encourage and sustain a high level of economic activity. All this work made it clear that the financial markets perform another function in a capitalist economy: the transmission of monetary policy.

There is a vast amount of literature on the topic which can be broadly classified in two different schools: the money-view and the credit-view[13]. Starting with the money-view, the

---

[11] The idea of disequilibrium in the money market with consequences in output fluctuations was suggested earlier by other authors. R. G. Hawtrey Currency and Credit, Longman, 1919.; R. G. Hawtrey, Trade and Credit, Longman, 1928 and K. Wicksell Lectures on Political Economy, 2nd. vol, Routledge and Kegan Paul, 1935.

[12] The liquidity trap is therefore, the result of an absolute preference for liquidity. The reasons of the demand for money because of speculative motives is explained by Keynes in Chapter 15, Op. Cit., pp. 169-179.

[13] It reedits the debate of the 19th century in England between the ''Currency School'' and the ''Banking School''. A. J. Schwartz, "Banking School, Currency School and Free Banking School', Money: The New Palgrave: A Dictionary of Economics, 1987, pp. 41-49.

interpretation of the Keynesian theory made by Hicks in his famous IS-LM model came to reinforce the idea that with two financial assets (money and loans), the credit markets can be omitted from the analysis using the Walras law[14]. For this reason, it became generally accepted that currency was regarded as the only relevant monetary aggregate in the financial-output interaction for the writers who subscribed to the *General Theory*. This was strengthened later on, with the resurgence of the quantity theory of money first developed by the 'classics' in the 18th century[15]. Much of the revival of this approach is owed to Milton Friedman and Ana Schwartz for their studies of business cycles taking into account both the velocity of monetary circulation and the correlation between money, output and prices[16]. They argued that the Great Depression of the 1930s was due to a sharp and unusual monetary contraction applied by the Federal Reserve System when, the demand for money was growing and the velocity of circulation was declining. Thus, for the so-called monetarists, the main variable affecting the level of activity in the short term, and the level of prices in the long term, is the rate of growth of the money supply. No other aspects of the financial markets play any role in output determination.

The credit-view takes into account the whole process of financial intermediation and thus, the way in which the supply of credits is generated. It began with the contribution made by John Gurley and Edward Shaw, who challenged the previous studies that included money as part of the wealth of the society (wealth-view)[17]. In contrast, these authors claimed that money as well as all other financial assets have their corresponding 'debt' counterpart and this, in turn, implies a relationship between debtors and creditors (debt-intermediation view). By taking into account a spectrum of financial assets wider than just currency, new financial issues were considered in the study of the financial-output interaction such as:

---

[14] J. R. Hicks ''Mr. Keynes and the Classics: A Suggested Interpretation'', Econometrica, April 1937.

[15] A survey of the different versions of the quantity theory is provided by Milton Friedman. M. Friedman, "Quantity Theory of Money", Money: The New Palgrave: A Dictionary of Economics, 1987, pp. 1-40.

[16] M. Friedman and A. Schwartz A Monetary History of the United States, 1867-1960, National Bureau of Economic Research, 1963.

[17] J. Gurley and E. Shaw "Financial Aspects of Economic Development", American Economic Review, September 1955, 45, pp. 515-538.

(a) the substitutability of assets and the chain of interdependency of financial markets; (b) the stability/instability of the financial system and; (c) the depth of the financial structure and the importance of financial institutions in economic development. To begin with, individuals make decisions about how to allocate resources based on their personal preferences as well as on an analysis of the *risk* and *return* associated with the different real and financial assets. They consider simultaneously the whole set of assets as well as the interdependencies between the decisions that other individuals make. The portfolio approach suggested by James Tobin demonstrates that, for instance, an increase in money supply can cause a change in the return on money and so, in turn, can trigger a reallocation of individuals' portfolios. In theory, and assuming *no* market restrictions as well as perfect substitutability among assets, a new portfolio equilibrium is achieved when the marginal return on allocating one dollar to each different asset coincides[18]. This means that the effect of an increase in money supply in the economy is *not* independent of the variables affecting the supply of, and demand for, the rest of the assets and of institutional or market restrictions including, for example, the fiscal deficit, the degree of substitutability of assets and of market segmentation, the individuals' preferences for liquidity and so on. An important conclusion to be drawn from this approach is that by controlling the supply of one monetary aggregate (e.g. currency), the relative return on the whole spectrum of real and financial assets can be modified.

The issue of instability of the financial markets and its effects on the economy was studied in depth by Hyman Minsky and Charles Kindleberger[19]. In accordance with Fisher's debt-deflation theory, Minsky maintained that the over-indebtedness of firms during periods of economic boom causes the financial system to become more fragile finally, culminating in

[18] This is the well-known theorem developed by J. Tobin, "Money and Economic Growth", Econometrica, 1965, 33, pp. 671-84.

[19] H. P. Minsky, ''Theory of Systematic Financial Instability'', in Financial Crises: Institutions and Markets in a Fragile Enviroment, E. I. Altman and A. W. Sametz (eds.), 1977; H. P. Minsky ''Can it happen again?, Essays on Instability of Finance, 1982 and; C. P. Kindleberger, Manias, Panics and Crashes, 1978.

a process of debt liquidation with detrimental consequences for economic activity[20]. In a period of economic expansion, the confidence of banks and borrowers rises, resulting in a cycle of speculative investment boom which brings about an increase in lending well beyond safe margins. With firms in a position of being highly dependent on market finance, problems begin when the prospects for the economy change in the investors' eyes, originating a period of business downturn which leads to a wave of bankruptcies with distress selling and asset liquidation. The deterioration in the cash-flows and net worth of borrowers reduces their levels of expenditure and this, in turn, causes a further decline in output and a deepening of the economic and financial decline. Thus, government action is needed to prevent the destabilising effects of financial markets on the economy in line with the Keynesian position.

The importance of the financial structure and financial intermediaries in the economy was recognised long ago by Gurley and Shaw[21]. They claim that the significance of the stock of money in the economy declines when the financial development is higher. Hence, what is relevant for the economy is not dependent on the stock of money per se but rather on the overall 'financial capacity'. This measures the borrowers' capacity to absorb debt without having to moderate current spending and future demand commitments. Financial capacity is thereby, an important determinant of aggregate demand which, in turn, has an effect on business performance and the structure of the debtors' balance sheets. In their view, financial intermediaries help to expand borrowers' financial capacity by making it easier for investors to obtain greater amounts of funds and better credit terms than they could have otherwise achieved from directly issuing securities to lenders[22].

---

[20] The debt-deflation theory was the first meaningful explanation of the origin of the Great Depression. It appeared in the first issue of *Econometrica* in 1933, when the economic crisis was still in progress. I. Fisher ''The Debt-Deflation Theory of Great Depressions", Econometrica, October 1933, 1, pp. 337-357.

[21] J. Gurley and E. Shaw, Op. Cit., pp. 15-38 and; J. Gurley and E. Shaw, Money in a theory of Finance, 1960.

[22] In this line of research, Raymond Goldsmith, Alexander Gerschenkron and Rondo Cameron - among other writers - followed a historical analysis to show the relevance of the financial structure and of banking institutions in economic development. R. Goldsmith, The Financial Develoment of India: 1870-1977, 1969; A. Gerschenkron, Economic backwardness in theoretical perspectives, 1962 and R. Cameron, Banking and Economic Development: Some Lessons of History, 1972.

In short, the credit-view school is comprised of those who believe that financial factors matter and that the financial intermediaries play a crucial role in the performance of the economy. The so-called ''neo-Keynesians'' argued that the transformation of savings into investment is neither smooth nor automatic and, therefore, all the factors which intervene in the process of channelling resources become relevant for capital accumulation. They considered that the policy of the government should be to try to keep interest rates low in order to encourage the private sector to undertake investment projects, as well as to have better control over the effects of financial factors on the economic cycle. Moreover, for some of these economists, State intervention is needed to avoid the destabilising effects of financial markets on the economy. This approach helped to show the non-passiveness of the financial markets in the process of capital accumulation in accordance with Keynes' belief that, for the economic activity, what actually matters is the rate of investment.

However, it should be borne in mind that not only does economic growth depend on the *amount* but also on the *efficiency* of the resources which are invested[23]. The ground-breaking studies of the efficiency of financial markets in economic development were carried out by Ronald McKinnon and Edward Shaw at the beginning of the 1970s[24]. These authors stressed the problems of financial intermediation in developing countries as a result of growing State intervention which implied, among other things, selective or sectoral credits, high reserve requirements, foreign exchange controls and interest rate ceilings on deposits and on loans combined with high inflation rates. All these mechanisms were used by governments to obtain different goals such as: the transfer of resources from the financial system to the public sector, a reduction in the costs of

[23] During the 1960s and 1970s, the dominant theory in developed countries regarding allocative market efficiency of capital was the famous Modigliani-Miller theorem which states that: if the firm's value could be changed by altering the financial mix (equity and debt), this would imply a pure arbitrage opportunity. Therefore, in a scenario of perfect capital markets, real economic decisions are independent of the financial structure. This theorem is the theoretical base of the neoclassical arguments in which, financial considerations are ignored in the study of the economic cycle. F. Modigliani and M. H. Miller "The Cost of Capital, Corporation Finance and the Theory of Investment", American Economic Review, June 1958, pp. 261-97.

[24] R. I. McKinnon Money and Capital in Economic Development: Brookings Institution, Washington D.C 1973; and E. Shaw Financial Deepening in Economic Development, 1973.

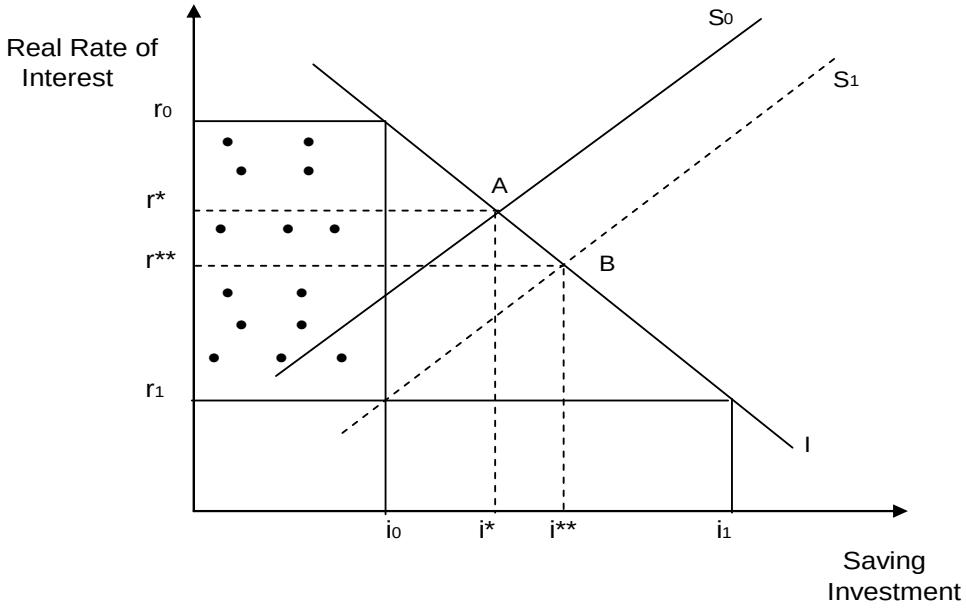
financing fiscal deficits, the encouragement of private investment in areas regarded as priority by the authorities, as well as the maintenance of a high level of economic activity. McKinnon and Shaw stressed that these practices lead to a state of 'financial repression' which seriously affects the quantity and the efficiency of the funds channelled throughout the financial system. This conclusion was reached following different but complementary elements of the process of financial intermediation. Whereas McKinnon's model emphasises a direct relationship between the demand for money and physical investment in a world of self-financed agents (outside money), Shaw used the debt-intermediation view to show the whole process of financial intermediation, departing from the deposit accumulation and culminating in the expansion of the lending capacity of the banking institutions (inside money). It is acknowledged however that these analyses are complementary rather than rival theories, since most projects require financing from both their own funds and outside loans[25].

The essential common elements of the McKinnon and Shaw approaches can be summarised as follows: the larger the money stock in relation to the level of activity, the greater the extent of financial intermediation between savers and investors through the banking system. Graph II.1 presents the main features of this neo-classical hypothesis.

[25] L. E. Molho, "Interest Rates, Saving and Investment in developing Countries: A Re-examination of the McKinnon-Shaw Hypothesis", International Monetary Fund Staff Papers, 33, 1 March, p. 111.

Graph II.1

Market of Credit




Usually, financial institutions mediate between savers and investors. At a given rate of economic growth ($\sigma_0$), the supply of credit ($S_0$) is a positive function of the interest rate in real terms. As mentioned earlier, a common practice in developing countries was the setting of interest rate ceilings which resulted in a chronic excess demand for loanable funds. The Graph above shows that, at the interest rate ($r_1$), the supply of credits appears as the binding constraint in the credit markets and, therefore, the actual physical investment is limited to the available amount of saving ($i_0$). McKinnon and Shaw highlight the fact that the allocation of funds which exceeds the demand for credits at the prevailing interest rate ($i_1$ - $i_0$) is made based on criteria other than market prescriptions. Alternatively, if the interest rate ceiling is applied only to depositors, the borrower will pay the rate ($r_0$); that is, the rate which clears the market with a restricted supply of credits (savings). In this case, the resulting high spread of financial intermediation ($r_0$ - $r_1$) evidences the inefficiency of a banking system which operates with a deposit rate ceiling[26].

[26] M. J. Fry, Money, Interest, and Banking in Economic Development, 2nd ed. 1995, p. 26.

In practice, the repression of the financial system usually includes not only ceilings on deposit rates but also on lending rates. This means that loans are allocated not according to the expected productivity of the investment but, according to the 'influence of the borrower' on the bank, provided that the financial conditions (borrowing costs and collaterals) are met. Among others, borrower's influence can mean political pressure, type of collateral, loan size, friendships or even hidden benefits offered to loans officers (e.g. bribes and kickbacks). This policy has damaging effects on the average efficiency of investment since the selected projects are required to yield a return slightly above the lending rate ceiling. A direct consequence of this is the great dispersion in the rate of return on projects, which characterises the financially repressed economies, as shown by the dots in Graph II.1.

All this led McKinnon to conclude that "in the face of great discrepancies in rates of return, it is a serious mistake to consider development as simply the accumulation of homogeneous capital of uniform productivity" and, that economic development should be seen "as the reduction of the great dispersion in social rates of return on existing and new investments under domestic entrepreneurial control"[27]. Hence, the strategy of keeping low and negative rates of return on financial assets, thereby sustaining an excessive demand for loans, has strong negative effects on economic development for several reasons. It fosters current consumption instead of future consumption (savings) and potential lenders may decide to invest directly and not to borrow from the financial market. Interest rate ceilings may also create a bias which could favour credit allocation to low-yielding-projects. The inability of borrowers to obtain credits in formal markets and the unwillingness of lenders to lend at the prevailing - formal - market rates result in segmentation in capital markets. Finally, the long-term consequence of a disincentive policy for accumulating domestic assets is a shallow financial structure.

[27] R. I. McKinnon, Op. Cit., 1973, p. 9.

To deal with these flaws, McKinnon and Shaw recommended a policy of interest rate liberalisation[28]. It was believed this measure would have a beneficial effect on the overall economy by raising both the saving and the investment rates. In effect, an increase in the interest rate, from ($r_1$) to (r*), would cause an expansion in the rate of saving/investment, from ($i_1$) to (i*)[29]. In addition, free market determination of interest rates would improve the quality of resource allocation by preventing the financing of low-yielding projects as illustrated by the dots below the equilibrium rate in Graph II.1. By the same token, an improvement in the efficiency of capital investment generates an increment in the rate of economic growth ($\sigma_1$) which, in turn, shifts the saving function to ($S_1$). Thus, a new lower equilibrium rate (r**) is achieved with the corresponding levels of saving and investment (i**)

To summarise, the McKinnon-Shaw study asserts that economic growth is a positive function of a country's financial depth[30]. For them, the liberalisation of the financial system is fundamental for achieving that goal[31]. Indeed, by accelerating the transference of funds from saving to investment units and improving allocation, financial deregulation will have a positive impact on the rate of growth and this, in turn, will contribute to the deepening of the financial system. The opening-up of the capital account to international capital movements is another key measure for the financial liberalisation school. Market competition will be fostered and this will reduce the interest rate differentials as well as market segmentation Thus, financial deepening is both a consequence and an essential element for economic development.

---

[28] Following this advice, a far-reaching programme of financial liberalisation was implemented in Argentina between 1977 and 1981.

[29] E. Shaw, Op. Cit., 1973, pp. 81-83.

[30] Financial deepening is defined as the increment in the ratio of a country's total financial assets to its Gross Domestic Product (GDP).

[31] R. I. McKinnon "Financial Liberalization in Retrospect: Interest Rate Policies, in LDCs, in The State of Development Economics, Ed. by Gustav Ranis and Paul Schultz, 1988, pp. 388 97.

Although nearly two hundred years have passed between Adam Smith (1776) and Ronald McKinnon (1973), the main concern in the study of economic growth remains the same: how to generate sufficient amounts of saving and, how to make efficient use of these funds. Throughout this period, different views have been put forward to deal with the main problems identified in the process of capital accumulation. Each of these visions contains an explicit or implicit consideration of financial markets which, in turn, evidences a belief about the role that the financial intermediaries play in the market economy.

The 'classics' believed that financial agents perform passively and smoothly the function of transferring resources from savers to investors, so as to make the needs of those who have funds coincide with those who can make use of them. However, it is necessary to ensure that the resources which are *not* consumed are invested in productive activities because one cannot count on savings being automatically converted into investment. This is so, as investors' decisions depend on their expectations about the future evolution of the economy (animal spirits). Furthermore, the allocation of a given flow of saving depends on the relative return between real and financial assets which means, that the composition of individuals' portfolios may heavily influence the degree of capital deepening and hence, the long-term rate of growth. Thus, coordination failures between savers and investors are central to the Keynesian approach. This author believed that market failures occur in both the money and credit markets and that, this is what ultimately accounts for macro-economic disequilibria.

Finally, the allocative efficiency of funds is the main concern for the neoclassicals. With this conviction, McKinnon and Shaw argued that financial markets perform a vital function in economic development and that, the troubles in the developing world are due to State intervention in these markets. Therefore, only 'government failures' are to blame for the problems of efficiency in capital markets throughout the saving-investment process.

### II.2.1 Informational Problems in Market Efficiency

The foremost evolution of economic theory over the last thirty years or so has been to demonstrate that allocative efficiency in a market economy is a much wider issue than believed by the neo-classicals. They asserted that competitive markets produce an optimal allocation - "Pareto efficient" - and, therefore, all that is needed is to ensure a free market operation[32]. This theoretical approach, however, does *not* encompass the full dimension of informational problems which include, asymmetric information between individuals as a result of the division and specialisation of labour and of knowledge. When information is imperfect, the actions of agents have externality-like effects on others - adverse selection, incentive effects, moral hazard, co-ordination failures - which can have negative effects on the allocative efficiency of competitive markets.

The first appraisal of market inefficiencies due to asymmetric information is based on the 'lemon' idea suggested by George Akerlof[33]. This author studied the relationship between the quality of products and prices in the used car market[34]. The market price reflects the average quality of the traded product and, therefore, sellers of comparatively high-quality-goods will be paying a premium to sellers of comparatively low-quality-goods (lemons). In this situation, sellers of high-quality-goods may wish to stay out of the market so as *not* to sell their products at the market price. This, in turn, causes a reduction in the average quality of the remaining goods that are offered in the market and thus, other agents with products of relatively high quality, may also decide *not* to exchange them at the market price; originating - once again - the problem commented on above. In an extreme scenario, *no* transaction is made and this causes a market collapse[35].

---

[32] A situation is called 'Pareto efficient' when it is impossible to increase the welfare of any party without decreasing that of some other party.

[33] G. Akerlof "The Market for Lemons", Quarterly Journal of Economics, August 1970, 84, pp. 488-500.

[34] An excellent survey on the informational problems in economics is given by J. E. Stiglitz, "The causes and consequences of the dependence of quality on price", Journal of Economic Literature, 25, pp. 1-48.

[35] The same idea was modelled by Gregory Mankiw for the financial market. N. G. Mankiw ''The Allocation of Credits and Market Collapse'', Quarterly Journal of Economics, 101, August 1985, pp. 455-70.

The consequences of informational problems for the efficiency of competitive markets was generalised later by Bruce Greenwald and Joseph Stiglitz with the re-formulation of the Fundamental Theorems of Welfare Economics[36]. They showed that when information is not fixed - and in particular is influenced by the action taken by one or more individuals - or markets are incomplete, an economy is *not* constraint Pareto-efficient[37]. This indicates that the price mechanism does not provide all the relevant economic information and hence, government interventions, which include the costs of information and of establishing markets, can be welfare improving.

Besides the restrictions on the allocative efficiency of markets, informational problems also explain the establishment of institutions needed for the running of the market economy. Indeed, it was first posed by Ronald Coase that the neo-classical model holds only under severely restrictive assumptions of zero transaction costs; when the transaction costs are positive, institutions matter[38]. As defined by Harries, institutions are "the rules of the game of a society, or, more formally, are the human devised constraints that structure human interaction. They are composed of formal rules (statutes, laws, common law, regulations), informal constraints (conventions, norms of behaviour, and self imposed codes of conduct) and the enforcement characteristics of both"[39]. With perfect and costless information, there would be *no* transaction costs since each party involved in a market transaction would know all the attributes of the goods or services traded as well as the attitude and behaviour of the other agent. In this case, the enforcement of a certain agreement would be unnecessary as the parties would know the exact result of the transaction well in advance.

---

[36] A general methodology for the analysis of the welfare consequences of imperfect information and limited markets is found in B. Greenwald and J. E. Stiglitz, 'Externalities in economies with imperfect information', Quarterly Journal of Economics, 1986, 101, pp. 229-264.

[37] These authors added the term *constraint* with the aim of indicating that the costs of information as well as of establishing markets were taken into account.

[38] R. H. Coase 'On the problem of social cost', Journal of Law and Economics, 3, October 1960, pp. 1-44.

[39] J. Harris, J. Hunter and C. M. Lewis, "The new institutional economics and third world development" in J. Harris, J. Hunter and C. M. Lewis (eds.), The New Institutional Economics and Third World Development, 1995, p. 23.

In the real world, however, information is neither perfect nor freely accessible and, therefore, the market exchange is ***not*** without cost. Transaction costs are the costs of negotiating and carrying out transactions including: bargaining, planning and deciding what needs to be done, the costs of writing and enforcing contracts, the provision of incentives as well as the costs of enforcing agreements so as to ensure that people follow instructions, honour commitments and keep agreements. In other words, these are the costs of running the 'exchange' in the economy, and the size of these costs depends on the nature and on the way in which the transactions are made[40]. Kenneth Arrow defined it as the 'cost of managing the economic system'[41]. This explains why transactions usually occur in the *market* when doing so is most efficient, or they are brought within *hierarchical organisations* when doing so minimises the transaction costs[42].

The economic performance of markets is therefore, subject to the design and functioning of the institutions. Paralleling the Greenwald and Stiglitz' theorem cited above, it can be stated that the overall efficiency of the process of capital accumulation is under *constraint* to institutional factors as well. Alternatively, the economic institutions can be seen as one kind of 'intervention' in the purity of the neoclassical world of competitive markets, which can be welfare improving. Needless to say, the outcome will certainly depend on both the institutional arrangements and the way in which the *non-market* organisations are run.

Briefly, informational problems can affect market efficiency from two different sides: when the standard operation of markets is altered by the effect of asymmetric information among agents (market failures) and, when there is a deficient arrangement, establishment

---

[40] For a study of transaction costs and their economic effects see, O. E. Williamson, The Economic Institutions of Capitalism, 1985, Chapters I and II and D. North ''Institutions, Transaction Costs and Economic Growth'', Economic Inquiry, 25, July 1987, pp. 419-428.

[41] K. J. Arrow ''The organisation of economic activity: Issues pertinent to the choice of market versus non-market allocation'', in The Analysis and Evaluation of Public Expenditure. The PPB System, Vol 1, Joint Economic Council of the United States. 91 Congress, 1st Session, 1969, p. 48.

[42] These include all kind of non-market organisations such as private and public enterprises, civil service, government, non-governmental bodies, etc. A study of 'markets' and other 'hierarchical organisations' is found in O. E. Williamson, Markets and Hierarchies. Analysis and Antitrust Implications, 1975

and enforcement of the property rights and other economic incentives, which give rise to high transaction costs (institutional failures)[43]. Whereas the former is a modification in the structure of market information caused by the action of one or more economic agents; the latter is the outcome of the structure of incentives in which the economic agents operate. Additionally, these 'two flaws' may be closely interrelated since the individuals who are trading in one market are influenced by the 'rules of the game' - the formal and informal institutional settings - of the economy and at the same time, the institutional framework can be affected by the actions taken by these economic actors. This is very important because "the dynamics of the interplay between the rules and the players - the causality - is the critical factor for a society's capacity to obtain the 'right' or the 'wrong' institutions"[44]. In this regard, one way in which the market-players may have an impact on the institutional framework is when their actions cause externality-like effects on other agents (incentive effects, moral hazard, adverse selection and coordination failures). For example, if there is an acceleration in the rate of inflation, the banks will shorten their lending. By doing this, the liquidity risk of the firms rises and consequently, the economy as a whole is adversely affected. In this way, the action taken by the banks to accommodate to a new institutional arrangement, causes a further change in the financial structure of the economy[45].

---

[43] 'Institutional failure' is a much broader concept than that of 'government failure'. While the latter refers exclusively to State intervention in markets and/or its regulation, the former encompasses the design and the enforcement of ***all*** human devised constraints which structure human interaction. Within this set of constraints, government action is one among many other components of the institutional framework of the economy.

[44] E. Wiesner, "Transaction Cost Economics and Public Sector Rent-Seeking in Developing Countries: Toward a Theory of Government Failure", Evaluation & Development: The Institutional Dimension, R. Picciotto and E. Wiesner (Eds.), Transaction Publishers, The World Bank, pp. 15-16.

[45] The other way in which the 'rules of the game' of a society are modified is when the individuals exert 'exogenous' pressure on the government as a result of lobbying and of rent-seeking actions by pressure groups. This is commonly utilised in studies of the economic effects of institutional change in the *long-run*. In a short-term study like that of the financial reform in Argentina (1977-81), it is sometimes more fruitful to examine the 'endogenous' interaction between the market-players and the institutional framework in the way suggested above. This does not mean that institutional change in capital markets as a result of either the action of pressure groups or of a policy reform will not be taken into account in this analysis when appropriate.

This change means that the allocative efficiency, the cornerstone stone of the neoclassical theory of market economy will be affected. The free operation of markets is a necessary, but by *no* means a sufficient condition for attaining an efficient allocation of resources[46]. This is so because all markets operate within an institutional framework and, therefore, their performance is inevitably influenced by institutional factors. Market performance may be also affected by the uneven distribution of information and knowledge among individuals[47]. Thus, both the institutional settings and the distribution of knowledge and information among agents are crucial elements for an efficient operation of markets and should be added to the factors affecting economic growth identified by the Smithian, Keynesian and neoclassical schools.

Although these factors affect all types of markets, the present analysis focuses on the problems of information in connection with financial markets only. The role of financial intermediaries will be examined in the light of the new informational and institutional approaches.

### II.2.2 The Role of Financial Intermediaries

Traditionally, the roles of financial intermediaries (banks) were confined to the mobilisation of savings, agglomeration of capital, asset transformation and the transference of funds from those who have saved them (savers) to those who can make use of them (investors), plus the responsibility for running the medium of exchange. Thus, banks were perceived merely as providing the missing link between the financial products that firms wanted to issue and the ones desired by investors[48]. Today, thanks to the progress in the study of imperfect information, it is known that the process of intermediation between

---

[46] The importance of market mechanisms in solving the issues of *coordination* and *motivation* of economic resources - the two central problems of any economy - is fully explained by J. E. Stiglitz, Whither Socialism?,1994, Chapters 7, 8, 9, 10 and 12.

[47] It should be pointed out that the macro-economic disequilibrium highlighted by Keynes, the coordination failure between saving and investment units, arises because of asymmetric information between savers and investors. This shows the relevance of informational problems in the determination of output.

[48] J. Gurley and E. Shaw, Money in the theory of finance, 1960

borrowers and lenders entails special information-gathering activity and this explains some other functions of banks which are fundamental for the overall efficiency of the economy. These functions include:[49]

a. *Screening and selecting projects and borrowers*: out of the whole distribution of projects and borrowers, the banks have to distinguish and to choose: (i) which projects are likely to yield the highest return, which will enable the borrower to repay the loan; and (ii) who are the most trustworthy borrowers to whom the banks can allocate their credits.

b. *Monitoring the use of funds*: by understanding that borrowers and lenders have rival interests, it is necessary to ensure that the funds borrowed will be used as promised.

c. *Enforcing contracts*: making sure that the funds borrowed will be repaid or, that the lender's rights over the borrower will be exercised.

d. *Managing risks:* the asset transformation of banks gives rise to three kinds of risk: liquidity, interest rate and credit risks. It is the aim of the intermediaries to reduce or to eliminate these risks by: (i) 'transferring and sharing' them with other economic agents, (ii) 'diversifying' both their assets and liabilities as well as their debtors and creditors and; (iii) 'pooling' a large number of investment projects.

What follows is devoted to showing the importance of banks in the determination of output in line with the theoretical approach adopted and to developing the rationale which will be used in the analysis later on. The study of asymmetric information in credit markets encompasses the quality of borrowers and projects and its effects on the maximisation process of banking institutions[50]. In a seminal paper, Joseph E. Stiglitz and Andrew Weiss pointed out that a bank, like any other firm, tries to maximise the net expected return per

[49] The management of risks of the financial intermediaries is analysed later in Chapter V. Chapter VI deals with the consequences of screening and selecting projects and borrowers, as well as of enforcing contracts and monitoring the use of funds which the banks made in Argentina over the period 1977-81.

[50] The consequence of asymmetric information in credit markets was first studied by Jaffee and Russell in the 1976. D. Jaffee and T. Russell "Imperfect Information and Credit Rationing", Quarterly Journal of Economics, November 1976, 90, pp. 651-66.

dollar lent[51]. Interest rate increases, however, may have an impact on the quality of loan allocation because, one, a higher proportion of riskier borrowers will take up the loan offer, whereas risk averse borrowers, those who are unlikely to default, will drop out of the applicant' list, and two, all borrowers will tend to change the nature of their projects so as to make them more profitable and accordingly, riskier. The former is called the 'adverse selection' effect and, it refers to the economic consequences of changes in the interest rates on the borrowers' quality. The latter is known as the 'incentive effect' and entails the changes in the project's quality as well as its negative effect on loan repayment afterwards.

In capital markets where investment projects contain different levels of risk, a competitive equilibrium may entail credit rationing[52]. This occurs because the expected returns on loans decrease as a larger share of these loans are allocated to riskier projects. When there is asymmetric information between borrower and lender, the interest rate which maximises the bank's return may not be that which clears the market. Accordingly, credit rationing can be an optimal solution when the information costs of distinguishing the risk characteristics of different borrowers/projects are extremely high. In this situation, the loan supply curve bends backwards and after a certain point, a higher interest rate will only make the supply of credits decrease, worsening the excess demand for loans. At that point, the lender will find it profitable not to increase the loan rate but to ration credits.

Adverse selection and incentive effects are *ex-ante* problems of asymmetric information. These effects are seen in a situation in which an agent has more information about the quality of the investment project, and the uninformed party can either act to influence the mix of borrowers or to induce them to reveal, through their actions, their creditworthiness. The *ex-post* consequence of having differential information between borrowers and

[51] J. E. Stiglitz and A. Weiss "Credit Rationing in Markets with Imperfect Information", American Economic Review, June 1981, 71 (3), pp. 393-410.
[52] J. E. Stiglitz and A. Weiss (1981), Op. Cit., p. 397.

lenders is connected with the borrower's incentives to engage in activities which can benefit himself at the expense of the lender. These are the so-called moral hazard or the 'hidden action' and 'hidden knowledge' problems of asymmetric information. Here, lender and borrower have the same information about the feature and quality of the loan allocation, yet the outcome of an investment project depends on uncertain variables (e.g. behaviour of the debtors, state of the world, etc.), which are not freely observable by all parties. Since the amount owed to lenders is usually subject to the realisation of random variables, debtors will always have the incentive to misbehave and to misrepresent the project's result so as to lower the payments to the creditors. From the lender's point of view, this is the reason for incurring costs in order to monitor the allocation, use and yield of the funds lent.

The costs of monitoring loans subject to the probability distribution of a project's yield - *state of the world* - is the central argument of the 'costly state verification approach' put forward by Robert Townsend[53]. It should be emphasised that these costs are not only the costs of auditing and verification of the true value of the project's outcome or a firm but also the costs of realisation of assets if borrowers go bankrupt including, the division of assets among creditors with different rights, and the differential value which the assets may have for creditors and debtors. This approach provides a framework for the incorporation of incentive problems into the cost of the lending process, as well as for understanding the nature and features of other topics such as debt contracts, the financial intermediation process, the allocative consequences of asymmetric information, and the effect of financial factors on output fluctuations.

Based on this approach, Ben Bernanke made a significant contribution in relation to the transmission mechanisms of financial disruption on economic activity[54]. With asymmetric

[53] R. M. Townsend "Optimal Contracts and Competitive Markets with Costly State Verification", Journal of Economic Theory, October 1979, 21, pp. 265-93.
[54] B. Bernanke "Non Monetary Effects of the Financial Crisis in the Propagation of the Great Depression", American Economic Review, June 1983, 73, pp. 257-276.

information, banks need to develop special information processing skills. In this regard, the cost of obtaining information associated with the borrowers' creditworthiness and the project's quality makes the market for credit a 'customer market'[55]. Consequently, an important economic shock can destroy this 'customer relationship' which, in turn, restricts the effectiveness of the financial system as a whole in collecting and processing information as to the creditworthiness of borrowers.

By the same token, the endogenous interaction between financial structure and aggregate economic activity was also evaluated in a scenario of debt contracts with costly default. Within these studies, the most convincing are those which show the relationship between the level of investment and the borrower balance sheet position[56]. The argument runs as follows: the strong balance sheet position of the borrower implies that he has assets to offer as collateral for obtaining external funds. This helps to reduce the informational risk that outside lenders, face resulting in lower borrowing costs which, in turn, stimulate the rate of investment. As Ben Bernanke and Mark Gertler stressed: "the market equilibrium level of investment depends positively on the borrower balance sheet position, defined as the ratio of net worth to liabilities"[57]. The same idea was considered in the evaluation of the high sensitivity of the positive relationship between cash-flows and the investment rate. With *no* informational problems, it is likely that an improvement in cash-flows will generate further internal funds to finance an increase in investment. However, an additional effect may occur with imperfect information because an increase in cash-flows will strengthen the balance sheet position of companies, lowering the probability of default and increasing their chances of financing their investments from external sources. The

---

[55] This theory has been used to explain the length and depth of the recession during the Great Depression of the 1930s.

[56] See, for instance, B. Bernanke and M. Gertler, "Agency Costs, Net Worth and Business Fluctuations, American Economic Review, March 1989, 79, 1, pp.14-31; C. W. Calomaris and R. G. Hubbard "Firm Heterogeneity, Internal Finance and Credit Rationing", The Economic Journal, March 1990, 100, 90-104; and M. Gertler "Financial Capacity and Output Fluctuations in an Economy with Multi-Period Financial Relationships", Review of Economics Studies, 1992, 59, pp. 455-472.

[57] B. Bernanke and M. Gertler, "Financial Fragility and Economic Performance", Quarterly Journal of Economics, 1990, p. 573.

importance of this income-accelerator effect has been confirmed by several empirical studies[58].

In brief, with asymmetric information, a substantial increase in the market rate of interest due to market disajustments, macro-economic shocks, or policy mistakes might worsen the economic problems of adverse selection, incentive effect, moral hazard and coordination failures. This may lead to a significant drop in lending which, in turn, may cause a decline in investment and in the level of activity. It should be noted that this interaction between real and financial variables is an endogenous outcome as a result of changes in the structure of information of borrowers and lenders. Moreover, if the structure of incentives - the rules of the game - of the economy is negatively influenced by the action taken by some market-players, cases of opportunistic behaviour, cheating and fraud may came to be regarded as acceptable behaviour and 'rewarded'. In this scenario, the rate of growth could be affected by institutional and informational weakness even if the financial markets are operating freely in line with the prescription put forward by the neoclassicals[59].

This thesis will use the theory of imperfect and asymmetric information to re-examine the Argentine financial liberalisation experiment, carried out in the late 1970s in accordance with the McKinnon-Shaw hypothesis. While other authors have studied this financial reform, this is the first time that it has been done applying the new information economics approach.

---

[58] See for instance, O. Eckstein and A. Sinai "The Mechanism of the Business Cycle in the Post-War Era", in The American Business Cycle: Continuity and Change, R. Gordon (Ed.), 1986; S. Fazzari, R. Hubbard and B. Petersen "Financing Constraints and Corporate Investment", Broking Papers on Economic Activity, 1988, 1, pp.141-206; M. Devereux and F. Schiantarelli, "Investment, Financial Factors and Cash-Flows: Evidence from U. K. Panel Data", Working Paper, National Bureau of Economic Research, 1989, No. 3116; T. Hoshi, A. Kashyap and D. Scharfstein, "The Role of Banks in reducing the Costs of Financial Distress in Japan", Working Paper, National Bureau of Economic Research, 1990, No. 3435.

[59] A study of the *micro-macro* interaction between the market-players and the institutional framework in the financial system of Argentina between 1977 and 1981 is presented later in Chapter VII.

## II.3 A GENERAL ANALYTICAL FRAMEWORK FOR THE FINANCIAL SYSTEM

This section is devoted to the building up of a consistent macro-framework for the study of the Argentine financial structure. The theoretical foundation of this analytical framework is the credit-view advanced by Gurley and Shaw[60]. The starting points are the wealth and income identities of individuals[61]. There are several advantages to the notion of building this framework on accounting principles. First, it assures macro-consistency, as it is based on the income and wealth restrictions faced by all economic agents. Secondly, the distinction between stock and flow variables arises naturally from the balance sheets and from the economic statements. Thirdly, the notion of net financial wealth shows the monetary character of one economy, as well as the connection between real and financial variables. Finally, by following the procedure in which the information is actually collected, the empirical running of this analytical tool is guaranteed.

This section begins by presenting a general outline defining the basic concepts of the financial framework. First of all, it is essential to define the notion of *net worth* (thereafter NW) in nominal terms for the individual (i) at time (t) as the difference between his stocks of total assets ($A_t$) and liabilities ($L_t$)[62]. That is[63],

(1) $NW_t = A_t - L_t = F_t + K_t - L_t$ with $A_t = F_t + K_t$

where $F_t$ = stock of financial assets

$K_t$ = stock of physical assets

---

[60] See above Chapter II, Section 2

[61] The theoretical grounds of this financial framework can be found in: J. Tobin “A general equilibrium approach to monetary theory”, Journal of Money, Credit and Banking, 1969 no. 1. J. Tobin “Money and finance in the macroeconomic process”, Journal of Money, Credit and Banking, May 1982, vol.68, no.2. J. Drabicki and A. Takayama "The General Equilibrium Framework of Economic Analysis: stock and flows with special application to macroeconomic model", in Green y Scheykman (Eds.) General Equilibrium Growth and Trade. Essays in Honour of L. Mc. Kenzie, 1979; S. Turnovsky Macroeconomic Analysis and Stabilization Policy, 1981; and J. M. Fanelli "Topicos de Teoría y Politíca Monetaria", Serie Docente, CIEPLAN, Santiago, August 1991, No. 5

[62] From now, unless specified otherwise, the terms individual, agent or economic sector are considered synonymous.

[63] The subindex (i) is eliminated to simplify.

As shown in the identity (1), an individual's net wealth is likely to contain both financial and physical assets. In order to focus the analysis on the financial side only, the concept of *net financial wealth* ($FW_t$) needs to be introduced. FW is defined as the difference between the stocks of total financial assets and liabilities. FW can also be expressed as the net total worth minus the stock of physical assets. Hence, the net financial worth of an individual in nominal terms at time (t) can be written as follows:

(2) $$FW_t = NW_t - K_t = F_t - L_t$$

It is a basic financial principle that each creditor has one or more debtors, and financial assets held by an individual are the liabilities of other(s) agent(s). This means that in an aggregation over individuals/sectors, assets/liabilities within the same group cancels itself out. Therefore, the financial wealth of one economic sector consists of its net claims on agents outside its group. Extending this argument to society as a whole, all financial relationships cancel each other out and thus, the stock of financial assets for the economy as a whole is zero. That is to say, the total wealth of a society becomes merely its stock of physical capital. Formally, this can be stated as:

(3) $$\sum NW^i_t - \sum K^i_t = \sum FW^i_t = 0 \qquad \text{with } i = 1,...,n$$

So far, the analysis has dealt with stock variables at a point in time. Over a period of time, the stocks of productive - financial and capital - assets generate a flow of income, which individuals can consume and/or save. It is known that the stock of capital increases with flows of net physical investment and the stock of financial wealth rises with positive net financial-savings or surplus (SUP), the part of the total disposable income that is allocated to increasing individuals' net financial wealth.

Taking the above-stated financial principle, when an agent is buying financial instruments, there must be one or more agents who are selling those assets so as to obtain financing for their deficits. In other words, the net change in an individual's financial wealth must be

equal to an opposite variation in the net financial wealth of one or more other agents. Accordingly, for the overall economy, changes in financial wealth are always zero.

(4) $SUP^i_t = \Delta FW^i_t = 0$ with = 1,...,n

Now, the real side of the economy is considered. The surplus ($SUP_i$) of an individual (i) at period (t) can be defined as the difference between his flows of income-savings ($S_i$) and of physical investment ($I_i$). It should be emphasised that an individual's savings are made up of the difference between disposable income and consumption. This means that the surplus of an economic unit is equal to the flow of savings net of its investments in physical assets[64].

(5) $SUP^i = S^i - I^i$

As Fanelli pointed out, a surplus exists only in a monetary economy, since this is the part of disposable income which is neither consumed in capital nor in consumer goods[65]. Indeed, in a barter economy 'goods are exchanged for goods' and therefore, there is no way of keeping income in other stores of value except in goods. In this type of economy, every agent has a surplus which is identical to zero. This implies that for each individual - and hence for the whole society - the planned rate of saving is equal to the planned rate of investment and consequently, the macro-economic equilibrium is always secured. However, in a monetary economy, the existence of 'surpluses' and 'deficits' means financial relationships between borrowers and lenders. Since savings units can differ from investment units, the *ex-ante* total savings may not be equal to the aggregate physical investment. This is the Keynesian-problem mentioned above of co-ordinating *ex-ante* global saving and investment rates in order to obtain macro-economic equilibrium.

The aggregated budget constraint of the economy shows that total expenditure must be

[64] In order to simplify, the subindex [t] is omitted.
[65] J. M. Fanelli (1991), Op. Cit., p. 27.

equal to the global income. Thus,

(6) $Y_d + M + Z + T - (C + PI + G + GI + X) = 0$

Where these symbols mean: total disposable income ($Y_d$); current consumption (C) and physical investment (PI) of the private sector. Imports (M) and exports (X) of goods and services; and net financial payments received from abroad (Z). Government revenues (T); and public expenditures in current consumption (G) and in capital goods (GI).

The above identity can also be written as follows:

(7) $(PS - PI) + (GS - GI) + (RWS) = 0$

where: $PS = Y_d - C$ = private sector saving;
$GS = T - G$ = government saving and;
$RWS$ = foreign sector saving.

The global budget restriction (expression 7) implies that - *ex-post* - the sum of the sectorial surplus in the economy must be equal to zero [ $\sum SUP^i_t = 0$; with (i) = the private, government and foreign sectors]. This macro-economic *condition of consistency* can also be attained by considering the financial side of the economy (see above expression 4). This is so because the connection between the real and financial variables is implicit in the definition of surplus. Therefore, changes in the financial wealth of an agent in one period can be written as the difference between the stocks at the beginning and at the end of the period plus/minus the capital gains/losses on its portfolio due to changes in relative prices[66]. Formally, this is as follows:

[66] Although it is beyond the scope of this study, capital gains/losses on financial portfolios caused by changes in relative prices and inflation can be easily incorporated into this framework. It should be pointed out that the surplus of an individual may *not* coincide with changes in his stock of financial wealth, if there is wealth re-distribution due to capital gains/losses (wealth-effect). This point is discussed in J. M. Fanelli Desequilibrio macroeconómico, restricciones financieras y políticas de estabilización, 1988.

(8) $SUP^i_t + \delta = \Delta FW^i_t = FW^i_t - FW^i_{t-1}$ where $\delta$ = capital gains/losses

The expression (8) shows the main properties of the selected financial framework which include: one, the natural integration of stock-flow variables; and two, the interaction of the real and financial markets in a consistent macro-economic framework. This macrofinancial analysis can be applied to different levels of des-aggregation over assets, agents/sectors and periods. In general, the availability of information is the only restriction on the achievement of higher levels of dis-aggregation.

### II.3.1 Setting up the Aggregation Procedure

Aggregation implies simplification. Simplification should be carried out by considering what is relevant and what is of secondary importance in a specific analysis. Axel Leijonhufvud rightly stressed: "the choice of a specific aggregation will depend on the limits of tolerable approximation that this context imposes"[67]. Since this is a general rule for 'making abstractions' in social sciences, two fundamental elements were taken into consideration in the building of the macro-financial framework presented below: one, the main features of the Argentine financial structure; and two, the availability of information on both the degree of dis-aggregation and the periodicity of the data. These are the criteria taken into account in the dis-aggregation over agents, assets and periods shown below.

*Aggregation over agents*: the distribution effect is the most important assumption which has to be made when aggregating over individuals. It is implicitly assumed that the wealth and the income effect of price changes are cancelled out within the aggregate. That is to say, the matrix of the financial relationships among agents of one sector (aggregate) is

[67] A. Leijonhuvud On the Keynesian Economics and the Economics of Keynes: A Study of Monetary Theory, 1967, p. 112

omitted. The purpose of this study is the evaluation of the financial relationships of the banking institutions with the other sectors. The financial structure of Argentina is therefore, divided into the following sectors:

- Financial Sector*:* this is made up of two types of financial intermediaries: (a) private and public banking institutions (commercial and saving-investment banks). (b) non-banking financial institutions, the so-called *financieras*.
- Government Sector*:* this includes the central administration, the provinces and the public enterprises.
- Private Sector*:* the non-financial private sector aggregates the sub-sectors of family and private enterprises. As mentioned above, *no* information is available to evaluate the financial relationships between these two sub-sectors.
- The Central Bank*:* this deals with the financial relationship between the monetary authority with the National Treasury as well as with the financial system. The Central Bank is responsible for monetary policy and for the control and supervision of the financial intermediaries.
- Foreign Sector: this is comprised of the financial relationships between the domestic economic units and the international capital market.

*Aggregation over assets*: it should be noticed that the implicit assumption in aggregating over assets is that the assets of one group, become perfect substitutes. This was pointed out by John Hicks: "if the prices of a group of goods (assets) change in the same proportion, that group of goods (assets) behaves as if it were a single commodity (asset)"[68]. By applying this 'theorem', the aggregation of financial assets into one single asset implies that changes in return/risk of assets inside the group are of no importance for the analysis.

The type of risk associated with each asset is the criterion used for aggregation in this

[68] J. R. Hicks Value and Capital: an inquiry into some fundamental principles of economic theory, 2dn ed. 1946, Mathematical Appendix, 10, pp. 312-13.

study. This requires the identification of the event that has the greatest influence on the expected return on assets in real terms[69]. As the thesis will demonstrate, in Argentina, the most important risk factors are: changes in the nominal level of price (*inflation risk*), changes in the nominal exchange rate (*devaluation risk*) and, changes in the nominal return on domestic assets (*interest rate risk*). This indicates that an analytical tool suitable for the study of the financial relationships of that country must contain - at least - the following categories of assets: currency; domestic assets and foreign assets.

*Aggregation over periods*: this refers to the aggregation of time-decision-making of agents regarding their portfolio allocation. In practice, these decisions are taken continuously. Therefore, the shortest possible period of analysis is needed in order to simulate the dynamic process of a portfolio allocation by taking a comparative static method. In this evaluation, the series of snapshots will be taken on a monthly base, which is the shortest period of time in which the empirical information needed is available. This means that this assessment considers only portfolio decisions which are re-viewed at the end of each month. A monthly-period analysis is regarded as a good approximation of reality in relation to the financial decisions taken in Argentina over the period 1977-81.

[69] For the difference between "type" and "degree" of risk, see A. Leijonhufvud, Op. Cit., 1968, pp. 122-30.

## II.4 A MACROFINANCIAL STRUCTURE FOR ARGENTINA

The macro-financial framework developed for Argentina is based on the dis-aggregation criteria defined above and on the wealth restriction faced by all economic units (exp. 2). To begin with, the wealth constraint has been dis-aggregated: (a) by assets, into twelve (12) kinds of assets that are specified below and; (b) by sectors, into five (5) economic units (financial and private sectors, Central Bank, government and foreign sectors)[70]. As stated earlier, the *month* is the period-analysis which will be used in the empirical case-study (see Chapter IV).

The net financial wealth of the *private sector* [fwp] is made up of money [mcp]; deposits in local currency - saving [sadp] and time deposits [tidp]; and assets nominated in foreign currency - deposits [jdepp] and public bonds [jbonp] in dollars. The liability side includes credits in local [credp] and in foreign currencies [jcredp]. Formally,

(9) fwp = mcp + sadp + tidp + jdepp + jbonp - credp - jcredp

The financial wealth of the *government sector* [fwg] includes money [mcg], time deposits in local [tidg] and in foreign currencies [jdepg]. Its liabilities are dis-aggregated into public bonds in domestic [bon] and in foreign currencies [jbon], credits given by the Central Bank [credg], and by the banks in domestic [credg] and in foreign currencies [jcredg].

(10) fwg = mcg + tidg + jdepg - ccbg - credg - jcredg - bon - jbon

The financial wealth restriction of the *financial sector* [fwf] is dis-aggregated into money in circulation [mcf], public bonds in local currency [bonf], banking reserves in the Central Bank [res], credits granted to the private and government sectors in local [cred] and in foreign currencies [jcred]. The liabilities are loans owed to the Central Bank [red], deposits

[70] The different financial instruments are defined according to the asset holder.

held by the government and by the private sector in local currency [tip], and private sector deposits nominated in foreign currency [jdep].

(11) fwf = mcf + res + cred + jinrf + jcred + bonf – sad - tip - red - jdep

The financial wealth restriction of the *Central Bank* [fwcb] is defined as:

(12) fwcb = jinvcb + ccbg + red + boncb + jboncb - mc - res

The financial portfolio of the monetary authority consists of international reserves [jinvcb] and credits nominated in local currency given to the government [ccbg] and to the banks [red]. In addition, public bonds in local [boncb] and in foreign currencies [jboncb] are assets held by the Central Bank. Its liabilities are dis-aggregated into money [mc] and into banking reserves [res].

Finally, the net financial wealth of the *foreign sector* [fwrw] in relation to the economy is comprised of government bonds nominated in foreign currency [jbonrw] and the stock of international reserves in the Central Bank [jinv].

(13) fwrw = jbonrw - jinv

The amount of physical assets held by the different economic sectors should be taken into account so as to obtain the global wealth constraint of the economy. That is,

(14) $\Sigma k^i = k$

where [k] means the stock of physical assets and *supra*-index [i] means the five economic units: the financial and non-financial private sectors, the Central Bank, the government and foreign sectors.

In short, expressions (9) to (13) make up a three-dimensional financial framework composed of assets, sectors and time, which will be used for the study of the allocation

and distribution (stock-variables), and changes (flow variables) in the portfolio of five economic units in Argentina per month during the period of financial liberalisation, 1977-81. What follows will show the importance of this apparatus for the empirical examination of the macro-financial structure.

### II.4.1 Matrix of Assets and Liabilities for the Financial System

The macro-financial framework outlined earlier can be structured in a double-entry matrix by gathering the financial wealth restrictions of the five economic units [expressions (13-17)]. In this matrix, the rows contain stock of assets (liabilities with negative signs), and the columns show the sectors into which the economy has been dis-aggregated[71]. In order to have in one single table the total wealth restriction of the economy, the stocks of physical assets held by the different economic sectors are added up at the bottom of the table.

[71] The third dimension of this financial matrix is obtained by developing the same structure for different periods (months).

Table II.1

Stock Matrix of Assets and Liabilities for Argentina.

| Sectors / Assets | Central Bank | Financial Sector | Private Sector | Government Sector | Foreign Sector | $\sum$ |
|---|---|---|---|---|---|---|
| 1. mon | (-) | (+) | (+) | | | 0 |
| 2. res | (-) | (+) | | | | 0 |
| 3. ccbg | (+) | | | (-) | | 0 |
| 4. dgcb | (-) | | | (+) | | 0 |
| 5. red | (+) | (-) | | | | 0 |
| 6. sad | | (-) | (+) | (+) | | 0 |
| 7. tip | | (-) | (+) | (+) | | 0 |
| 8. cred | | (+) | (-) | (-) | | 0 |
| 9. bon | (+) | (+) | (+) | (-) | | 0 |
| 10. jinv | (+/-) | (+/-) | | | (-/+) | 0 |
| 11. jdep | | (-) | (+) | (+) | | 0 |
| 12. jcred | | (+) | (-) | (-) | (+) | 0 |
| 13. jbon | | (+) | (+) | (-) | (+) | 0 |
| totass$^i$ | totassc | totassf | totassp | totassg | totassw | |
| totliab$^i$ | totliabc | totliabf | totliabp | totliabg | totliabw | |
| nfw$^i$ | nfwc | nfwf | nfwp | nfwg | nfww | 0 |
| k | kc | kf | kp | kg | kw | k |
| nw$^i$ | nwc | nwf | nwp | nwg | nww | nw |

The empirical information for building the matrix of assets and liabilities is obtained from the balance sheets of the different economic units. The following accounting rules must be observed in order to attain macro-economic consistency:

- The sum total across each row of financial assets must be equal to zero (the last column of the matrix). This guarantees the fulfilment of a basic financial principle which says that 'every creditor must have their corresponding debtor'.
- Based on the same principle, the net financial wealth of all economic sectors must be equal to zero (see the expression [$\sum$ nfw] in the third last row of the matrix).
- The sum total across each column must be equal to the sum of the stock of physical capital and net financial wealth of each economic sector (last row of the matrix).

- The sum total of the net worth [nw] across all economic sectors must be equal to the total stock of capital in the economy (last row and last column of the matrix). As stated above, the financial relationships between debtors and creditors cancel each other out and, therefore, for the society as a whole, the total wealth [nw] is only its stock of physical assets [k].

It should be stressed that the macro-financial matrix presented above is a fundamental tool for the assessment of a country's financial structure. In effect, at a point in time, the 'matrix of stocks' displays the distribution and the composition of financial wealth of the different sectors, as well as the distribution of debts and credits among different economic units. Over a period of time, the 'matrix of flows' shows the sectors with deficits which are reducing their net financial wealth, and those which are demanding assets in order to allocate their surplus. Finally, this tool is useful for the analysis of the stock-flow relation of each instrument as well as the deepening and the degree of risk of the financial system.

### II.4.2 Supply-Demand 'Stocks' and 'Flows' of Financial Assets

So far, the study has dealt with the *ex-post* accounting variables of the 'wealth' (stock) and 'budget' (flow) constraints which are faced by the decision makers in the economy. Now, the 'supply' of and the 'demand' for financial assets will be identified in this framework so as to obtain a correct *ex-ante* specification of the markets for assets and of the interdependence of individuals' decisions in connection with portfolio allocation. In effect, at the beginning of a certain period, economic agents display the size and the structure of portfolios that they want to hold at the end of the period, subject to their 'planned' wealth restrictions. Accordingly, the supply of and demand for stocks of financial instruments can be seen as the *ex-ante* version of expressions (9) to (13). They are identified by the superscripts "s" and "d" respectively. Furthermore, the equilibrium condition for the stocks of physical assets (capital) should be considered, if the *ex-ante* wealth constraint of the economy as a whole is to be attained. That is,

(15) $k^d - k^s = 0$

where: ($k^d$) is the total demand for physical assets, and the supply function is obtained by adding up the stock of capital held by each economic sector [$\Sigma\, k_i = k^s$; (i= 1,...,n)].

The ***ex-ante*** wealth constraint of the economy comprises the supply of and demand for stocks of financial and physical assets of all economic units. Expression (16) shown below is derived from the ***ex-ante*** specification of equation (3) after applying the dis-aggregation criteria of assets and sectors defined previously in Section II.3.1. Formally,

(16) $0 = (mcp^d + mcf^d + mcg^d - mc^s) + (sad^d - sad^s) + (red^s - red^d) + (jdepp^d + jdepg^d - jdep^s) + (jcred^s - jcredp^d - jcredg^d) + (res^d - res^s) + (tidp^d + tidg^d - tip^s) + (ccbg^s - ccbg^d) + + (cred^s - credp^d - credg^d) + (boncb^d + bonf^d + bonp^d - bon^s) + (jboncb^d + jbonf^d\ jbonp^d + jbonrw^d - jbon^s) + (jinr^s - inrcb^d - jinrf^d) + (k^d - k^s)$

In this expression, each bracket represents one single market and there is one market for each financial asset. By taking into consideration that a zero excess demand identifies a situation of market equilibrium, this equation helps to derive the Walras law for stocks: if a stock equilibrium exists in (*n-1*) markets, the (*n-th*) market must also be in equilibrium. In addition, the 'planned' wealth restrictions of all economic units can also be arranged in a double-entry matrix, in which the rows show the market conditions for stock-equilibrium of the different types of assets, and the columns show the equilibrium conditions of portfolio of the different economic sectors considered in the analysis.

Next, the market conditions for a 'flow equilibrium' of assets are taken into consideration. Bearing in mind the interdependence between stock and flow variables, the developments made by the 'stocks' are also valid for 'changes in stocks' of assets. Indeed, the demand-supply flow of financial instruments in one period is identical to the difference between the stocks of the net asset position of this sector at the beginning and at the end of the period in real terms ($\Delta fw_t$). This change, in turn, is equivalent to the financial surplus [sup] in real terms of that sector plus/minus the expected capital gains/losses [$\delta^e$] on its portfolio due to changes in relative prices. By following the same logic, the ***ex-ante*** flow budget constraint

of the economy as a whole, can be obtained by making the first order difference on the aggregate wealth constraint (equation 16).

(17) $0 = (\Delta mcp^d + \Delta mcf^d + \Delta mcg^d - \Delta mc^s) + (\Delta sad^d - \Delta sad^s) + (\Delta red^s - \Delta red^d) + (\Delta jdepp^d + \Delta jdepg^d - \Delta jdep^s) + (\Delta jcred^s - \Delta jcredp^d - \Delta jcredg^d) + (\Delta res^d - \Delta res^s) + (\Delta tidp^d + \Delta tidg^d - \Delta tip^s) + (\Delta ccbg^s - \Delta ccbg^d) + (\Delta ced^s - \Delta credp^d - \Delta credg^d) + (\Delta boncb^d + \Delta bonf^d + jbonp^d - bon^s) + (\Delta jboncb^d + \Delta jbonf^d + \Delta jbonp^d + \Delta jbonrw^d - \Delta jbon^s) + (\Delta jinr^s - \Delta inrcb^d - \Delta jinrf^d) + (\Delta k^d - \Delta k^s)$

Equation (17) shows that the sum of the excess demand-flow of the total economy must be equal to zero. Accordingly, the so-called Walras law for flows can be defined as follows: if (*n-1*) markets are in equilibrium of flows in one period, the (*n-th*) market must also be in equilibrium. It should be stressed that a 'matrix of flows' (e.g. $\Delta$mon) can be obtained as the difference between the 'matrices of stocks' of two points in time: at the beginning and at the end of one period (e.g. $m_t - m_{t-1}$).

## II.5 REAL AND FINANCIAL INTERACTIONS

The developments described with regard to the *ex-ante* 'wealth' and 'budget' constraints for the economy as a whole are of great importance for the study of the interaction between real and financial markets. It can be observed that any market imbalance in the real side of the economy - markets of goods and services - will automatically imply an imbalance in one or more financial markets. That is to say, for instance, an excess-demand for cars will generate an excess-supply in the market of one or more financial instruments (i.e. money, credits, etc.). This is derived from the macro-economic consistency shown by the Walras laws which dictate that all disequilibria in real markets will have financial effects. On the contrary, one cannot be sure whether a disequilibrium in financial markets will have a direct impact on the markets of goods and services or not. This is so, because an excess-demand for financial instruments can be counterbalanced by an excess-supply of other(s) financial asset(s). Following the example mentioned above, an excess-demand for money may be the result of an excess-supply of foreign currency without having any effect on the market for cars or, in general, on the real side of the economy (see equations 16 and 17).

It should be stressed that the difference does not lie in the criteria used for making a dis-aggregation of the real and the financial markets. In effect, if the financial side were aggregated into one single asset (e.g. money), a monetary disequilibrium would have an opposite impact on the real side, according to the macro-economic consistency shown previously, in which the result of adding up the excess-demand of all markets must be equal to zero. In a similar vein, by dis-aggregating the real side into more than one market, the Walras law could be met with an excess-demand in a market of goods and by an excess-supply in another market of goods, with *no* consequences for the financial side. Although this is true from an analytical viewpoint, it makes *no* economic sense whatsoever. Indeed, in a monetary economy any transaction always involves - *at least* - one financial instrument. Therefore, the possibilities for trading in a monetary economy

are only:

Goods/services <--- by ---> Financial assets
Financial assets <--- by ---> Financial assets

This can be summarised as follows: a disequilibrium in the real side of the economy is a *necessary and sufficient* condition for generating an opposite imbalance in one or in more financial markets. That is to say, all disequilibria initiated in a real market will have a spill over effect on financial markets. The same cannot be guaranteed in the case of a financial maladjustment: it is *a necessary* but *not a sufficient* condition for an imbalance in the real side - the markets of goods and services. These elements will be taken into consideration in the study of the financial and output interactions throughout the years of free banking operation in Argentina, 1977-81.

## II.6 CONCLUSIONS

The main concern in the study of economic growth is how to generate a sufficient amount of savings, and how to make an efficient use of these funds. In both cases, financial markets perform an essential task. This has been recognised by the principal schools of thought, although they have different views regarding the nature and thus, the functions of capital markets in the market economy. These differences lie primarily in the way in which the issue of information is taken into account. 'Classical' and 'neoclassical' economists believe that financial markets provide all the relevant information for an optimal decision at no cost and, that this information is fixed and cannot be modified by the actions of the market-players. For this approach, to ensure a high rate of growth, all that is needed therefore, is to obtain a high rate of saving and channel these funds freely - without state intervention - to the real side of the economy.

Within this school of thought, the most thorough analysis of the financial factors in economic development was presented by Ronald McKinnon and Edward Shaw at the beginning of the 1970s. They concluded that government interference in capital markets is to blame for the economic backwardness of developing countries (government failures). Interest rate ceilings and quantitative restriction in credit markets among other things, give rise to disincentives for saving in domestic financial assets and a misallocation of resources. To correct this situation, a policy of financial liberalisation is recommended so as to increase the rate of saving by raising the real return on assets. According to McKinnon-Shaw, with enough savings and 'free market' allocation of resources, a high rate of growth will result.

Those who believe that informational problems are pervasive in the economy, and that the market exchange and hence, the overall level of activity depends critically on them are supporters of the "new information economics". They believe that macro and micro-economic effects are a result of imperfect and asymmetric information among agents, which gives rise to coordination failures, transaction costs, adverse selection, incentive

effects and moral hazard. In other words, from different perspectives, these theorists challenge the neo-classical idea that the search for the self-interest of individuals will always produce a smooth and an efficient operation of markets. This is so because, if there are informational asymmetries, the structure of economic information can be altered by the action of one or more individuals which, in turn, will affect the 'normal' functioning of markets (market failures). In addition, with positive transaction costs, the efficiency of the market-system depends on the existence, the type, and the quality of the institutional framework responsible for the arrangement, or the establishment and enforcement of property rights and or other economic incentives. Accordingly, a *free* operation of the market mechanism is a necessary, but by *no* means a sufficient condition for attaining a high rate of growth. All this is even more significant in the case of developing countries where market failures as a result of informational and institutional weaknesses are far more serious than in the developed world.

The re-consideration of assumptions of perfect and costless information has changed many of the standard results expected by the neo-classicals including the McKinnon-Shaw hypothesis. The main effects of asymmetric information in capital markets can be summarised as follows: (i) interest rate increases may affect the quality of loans due to the adverse selection and incentive effects; (ii) financial deepening is generally associated with a greater leverage in the balance sheet of the borrowers and this, implies a greater divergence of the interests of borrowers and of lenders. Accordingly, the cost of financial intermediation - the agency cost - will rise as the borrower leverage increases, in contrast to McKinnon-Shaw's predictions; (iii) since the cost of information about borrowers makes the market for credits a customer market, macro-economic shocks or mistakes in the design and implementation of policy reform can destroy the 'customer relationship', lowering the efficiency of the financial intermediaries; (iv) the performance of the financial sector is not independent of the economic cycle because the balance sheet position, the cash-flows and the expected value of the collateral offered by the borrower are *non*-price factors taken into consideration by the banks in their decisions about lending and; (v) the weakening of the balance sheet position can affect the borrower's ability to repay loans

which, in turn, may have a knock on effect on the performance of the financial institutions. Finally, all these market failures could become more severe if there is an institutional framework which gives incentives to opportunistic behaviour, and if this is not punished appropriately (high costs of transaction).

These new advances in the theory of imperfect information will be used throughout this dissertation in the analysis of the financial liberalisation experiment in Argentina between 1977 and 1981. With regard to the methodology for the empirical study, a macro-financial framework was built to undertake a consistent examination of the financial relationships between different economic sectors. A wide range of financial assets - stocks and flows - was incorporated with the aim of dealing with the entire process of financial intermediation and *not* just with the money-supply process. In order to have an operational tool, this financial structure has been arranged in a matrix of assets and liabilities of the different economic sectors into which the Argentine economy was divided. Looking at the rows in the matrix, it is possible to identify the stock-flow relationships in connection with each financial instrument, while the columns show the sectors - with deficits - which are reducing their net financial wealth and those which are demanding financial assets in order to allocate their surplus. For a point in time, the matrix displays the distribution of the financial wealth as well as the structure of debts and credits among the different economic sectors. Finally, an *ex-ante* specification of the matrix make possible a market-analysis of the supply of and demand for each financial asset as well as, of the equilibrium or disequilibrium position of the different economic units regarding the allocation of their portfolios.

# CHAPTER III

# CHANGING THE MODEL OF CAPITAL ACCUMULATION

## III.1 INTRODUCTION

In March 1976, the armed forces seized power with the aim of re-establishing political and economic order. From the outset, the decision was to abandon the model of capital accumulation which Argentina had been following since the Second World War for one based on the prescriptions of economic liberalism. The intention was to break with the State-directed model of industrialisation by import substitution (ISI) and to move to an outward-looking, market-oriented growth strategy[1]. The aim of this Chapter is to give a description of the reforms, an analysis of the short-term macro-economic dynamic and the long-term structural consequences for the economy of the policies applied over the years 1976-81. The re-establishment of the political order was attempted by means of the so called ''dirty war'' against subversion by left wing organisations. The human rights abuses during this period have been well-documented and it is not the intention to discuss them further in this dissertation, except when restrictions on civil liberties had direct economic implications[2].

The organisation of this Chapter is as follows: section two presents a description of the formation and performance of the model of capital accumulation followed by Argentina between 1945 and 1975. The emphasis is on providing a historical context for the new model of development rather than on giving an in-depth analysis of the ISI model itself. Section three describes the new economic plan announced at the beginning of 1976. Taking into account the nature and the consequences of the policy reforms, the period 1976-81 has been divided into two phases: the first until the end of 1978 covers the years in which orthodox stabilisation tools - price deregulation and monetary and fiscal

---

[1] This policy is usually referred to by the Spanish acronym ISI, which stands for *industrialisación por substitución de importaciones.* This is the practice that will be followed hereafter.

[2] The National Comission to investigate the human rights abuses ('desapeared') – *CONADEP, Comisión Nacional de Desaparición de Personas* – published a report in 1984 entitled *Nunca Más* (Never Again) documenting almost 10,000 cases of desapearences of opposition activists during the military government 1976-81. *www.desaparecidos.org/arg/conadep/nuncamas/nuncamas.html*

policies - were used along with some trade and financial reforms. The second phase begins with a new stabilisation plan announced in December 1978, in which inflationary expectations were addressed by pre-announcing a sliding schedule of exchange rate devaluation and the economy was opened up to international trade and financial flows. Section four presents an evaluation of the structural consequences for the real sector of this stabilisation *cum* liberalisation experiment. The financial consequences - the main theme of this dissertation - are discussed at length in other chapters. Finally, the main findings of this study are summarised and further analysed in section five.

## III.2 THE MODEL OF INDUSTRIALISATION BY IMPORT SUBSTITUTION

The Great Depression brought about a disarticulation of the international flows of trade and capital, which led the developed countries to abandon the 'gold standard', devalue their currencies and apply protectionist policies. For Argentina, this world economic crisis resulted in a notable decline in the amount and value of exports and in the supply of foreign capital, severely affecting the country's capacity to pay for its imports[3]. Since nearly 60% of the total public revenues came from the external sector, the collapse of foreign trade also caused a deterioration in the fiscal accounts[4]. The policy reaction to this was the application of restrictive fiscal measures, which included the introduction of an income tax and the reduction of the wages of state employees as well as other public spending cuts in 1932. This was complemented with an increase in import tariffs, a devaluation of the domestic currency and the establishment of an exchange control, by which imports required a previous government authorisation. Thereafter, the exchange control was reinforced and the exchange system was split into an 'official' rate and a 'free floating' one. In November 1933, imports and manufacturing exports started to be traded at the higher 'free' rate of exchange, while agricultural products were sold at the lower 'official' rate[5].

Additionally, the government tried to help the primary sector by using different commercial instruments. In the case of meat producers, the country signed the 'Roca-Runciman Pact' with the United Kingdom in which, special preferences were conceded to British imports in exchange for maintaining the share of the British market for beef, which had been threatened at the Imperial Economic Conference in Ottawa[6]. In the

[3] The value of exports dropped from about US$ 1,000 million in 1928 to a US$ 335 million in 1932. If the generalised decrease in import prices is taken into consideration, it is estimated that the import capacity of Argentina measured by the resources obtained with its exports, dropped by one third over this period.

[4] In 1930 public revenues financed only 60% of government expenditure.

[5] A well documented analysis of the protectionist policies pursued by Argentina in this period is presented in R. Cortés Conde, La Economía Política de Argentina en el Siglo XX, 2005

[6] At this Conference, a quota system for a progressive reduction in imports of beef from Argentina had been agreed. An analysis of the 'Roca-Runciman Pact' and its economic and political consequences for Argentina is given by D. Drosdoff, El gobierno de las vascas (1933-56). Tratado Roca-Runciman, (1972); and P. Gerchunoff and L. Llach, El Ciclo de la Ilusión y el Desencanto. Un siglo de políticas económicas argentinas, 2003, pp. 124-130

case of grain producers, the 'Junta Nacional de Granos' was created to shield local producers by buying the excess supply at a minimum fixed price[7]. This measure was financed by the spread existing in the dual exchange rate system.

After two years of economic decline, these policy reforms and an improvement in the international commodity markets contributed to a recovery of the external accounts and a period of economic growth occurred between 1934 and 1937. In this period, the country passed from 'famine to feast' in relation to foreign funds. The problems now were associated with the surplus in the balance of payments and its consequences for the management of the supply of money and credits and the foreign exchange market. In an attempt to improve control of the monetary aggregates and of the financial system, the National Congress passed laws, in 1935, which created the Central Bank of the Republic of Argentina (Banco Central de la República Argentina) and laid down the rules governing banking operations. Throughout this period, the monetary policy was very conservative, in line with the prevailing view of what the role of the State should be in the management of the financial system; that is to say, adjusting the quantity of money in circulation in accordance with the 'true' level of activity. This view did *not* change fundamentally until the advent of the first Peronist government.

The belief that the worst had passed and that the country was again on the right road to development was proved wrong when a new negative external shock hit in 1937. The combination of the recession which affected the United States, poor harvests in Argentina and a fall in grain prices on the world market caused a decline in the value of exports, generating a depreciation of the domestic currency. At the same time, it was becoming clear that a new war in Europe was imminent, which would inevitably affect Argentine exports and, therefore, the economic difficulties experienced at the beginning

[7] It should be stressed that this was one of more than 20 regulatory bodies which were established in the 1930s to shield the local producers from deep market fluctuations. Among others, the most important are: the Comisión Nacional de Fibras Textiles (1931), de Aceite (1934), del Algodón (1935), de Fruticultura (1935); Junta Nacional de la Yerba Mate (1933) and Junta Reguladora de Vinos (1934). Berensztein and Spector provide a detailed analysis of the regulatory policy applied in these years, S. Berensztein and H. Spector, ''Business, Government and Law'', in G. Della Paolera and A. Taylor, A New Economic History of Argentina, 2003, pp. 324-368

of the decade would re-occur. However, the institutional infrastructure of regulatory bodies and the know-how acquired in the previous years was used to further ***protect*** local business from the expected closure of overseas markets.

The reaction of the government was to maintain the level of activity by making credits more easily available to the agricultural sector via the Banco de la Nación, the State-owned clearing bank and dominant player in the credit market, after the approval of the '*Ley de Crédito Agrario*' in 1937. However, maintaining a high level of activity did *not* help to reduce imports and the country went from a surplus of US$ 287 million in 1937 to a deficit of US$ 37.2 million in 1938. This led the economic authorities to adopt protectionist measures similar to those taken at the beginning of the decade: devaluation and restrictions on imports, which included a new increase in import tariffs and a tightening of exchange controls.

Although all the measures undertaken during the 1930s were designed to stabilise the economy and protect it from the effects of external shocks, one unintentional outcome was the significant impetus given to the process of import replacement and to the development of local industry[8]. Indeed, total imports dropped from 24.8% of GDP on average in the period 1925-29 to 18.5% in the period 1935-39. This occurred mainly in the sector of finished consumer goods, where the proportion of imported goods fell from 13.3% to 7.8% in that period. By 1939, the industrial sector as a whole had grown by 35% since the beginning of the decade, representing 23% of the total production of the country.

The decade of 1930s represents a turning point in a number of ways in the economic strategy which Argentina had been pursuing since the late nineteenth century. For the

[8] For some authors, the process of industrialisation based on import substitutions had begun in the 1920s. A. Petrecolla, ''Sustitución de importaciones y formación del capital (la industria textil, 1920-1940); Documento del Centro de Investigaciones Económicas, Torcuato Di Tella, Sep. 1968; C. F. Díaz Alejandro, ''Etapas de la industrialización argentina'' in M. Brodersohn (ed.), Estrategia de industrialización para la Argentina, 1970; and J. Villanueva, ''El orígen de la industrialización argentina'', Desarrollo Económico, 1972, vol.12, pp. 471-76

first time, the government took on an active role in the regulation of economic activity and in the control of both the commercial and financial relationships with the rest of the world. Furthermore, at the end of this decade, there was a growing consensus that the strategy of economic development based on the export of primary agricultural products left the country too vulnerable to external shocks and that the *new* international order made this model no longer appropriate for Argentina[9]. At the same time, the increased industrialisation obtained in these years showed that a more integrated and complex economy was possible. Gerchunoff and Llach summarise it neatly, in the 1930s, ''there was a change not only in economic thought and in the way in which the policy was carried out but also, in the foundations on which the Argentine economy was based''[10].

Evidence of a new development strategy began to appear in the early 1940s. The first example was the economic plan drawn up by the then-Minister of Economy, Federico Pinedo, which was submitted to National Congress in 1940[11]. The ''Pinedo Plan'' was an attempt to cushion the economy against the expected disruption in the global markets which would occur as a result of the Second World War. Although it contained several of the protectionist measures which had been applied before - import quotas, increased tariffs, foreign exchange control - the difference in this case was that an extensive public works programme was proposed as a means of raising domestic consumption. In line with Keynesian ideas, the State would not only regulate the markets, but would also play a direct role in the economy by providing employment and thus, stimulating aggregate demand.

The plan contained an important financial reform aimed at solving the lack of medium

---

[9] For a deeper analysis of the model of development which Argentina had been following until 1930 see, for instance, R. Cortés Conde, La economía argentina en el largo plazo, 1996; G. Di Tella and D.C.M. Platt (eds.) The Political Economy of Argentina 1880-1946, 1986; C. F. Díaz Alejandro, Essays on the economic history of the Argentine Republic, 1970.

[10] P. Gerchunoff and L. Llach, Op. Cit., p. 141 (author's own translation from Spanish).

[11] According to Juan José Llach, the Pinedo Plan was the basis of the economic policy applied thereafter by Juan Perón, ''El Plan Pinedo de 1940, Su Significado Histórico y Los Orígenes de la Economía Política del Peronismo'', Desarrollo Económico, vol. 23, Nro.92, pp. 515-558.

and long-term credits[12]. The intention was to create a financial body within the Central Bank, which would be able to transform the short-term deposits in banks into long-term loans of fifteen and twenty five years for the industrial and construction sectors respectively. This would be financed via a reduction in the reserve requirements of the Central Bank. The sectors and economic activities to which these credits would be allocated were fixed and predetermined by the government. They included industries which processed national raw materials, the construction of public housing and the acquisition of surplus harvests which could not be sold in the external markets. The financing body to be created would provide the funds, while the banks, *financieras* and other authorised institutions would be in charge of granting the loans. However, the risks assumed by the private sector were limited since all the obligations assumed by the financing body were considered to be obligations of the Argentine Nation. Likewise, it was proposed that the government had the right to guarantee the credits of export promotion and to receive public bonds of the national debt or shares in the public utility enterprises in payment or as collateral for exports.

Even though the Pinedo Plan was *not* approved and the gloomy predictions on which it was based were *not* fulfilled, the notion that the economic independence of the country lay in the continuation of the process of industrialisation and substitution of imports had taken root.

By 1945, the world economy, the economic structure of Argentina and the prevailing ideas on the role of the State in the economy had experienced fundamental changes compared with those existing in the pre-Great Depression period. On the one hand, the free trade order in the foreign markets had been definitively replaced by generalised protectionism and bilateral trade. On the other hand, Argentina had gone some way to reducing its dependence on the imports of finished consumer goods. Additionally, a belief in the use of expansionist fiscal and monetary policies as a means of sustaining

[12] From the early 1930s, the financing of long-term loans with short-term deposits was restricted in order to avoid liquidity problems in banks.

full employment and high rates of growth was beginning to be seen as an important duty of the State in Argentina and in other parts of the world (Welfare State).

The main economic goals of the first Peronist government proclaimed in the declaration of Economic Independence on 9th July, 1947 were to press on with the process of industrialisation by import substitution and to bring about a change in the distribution of income in order to expand the local market. In the words of Perón ‘‘… we must double production; multiply this by four by means of an appropriate industrialisation, that is to say, industrialisation will increase the added valued of our production, distribute this wealth in an egalitarian way and raise the living standards of our hungry population …. and with this, we will have solved one of the most important problems: social stability’’[13].

To these ends, Perón continued and extended further some policies of the previous government and introduced radical measures designed to plan, coordinate, control and participate in the process of development at all levels. These included the protection and promotion of industrial activities considered to be in the ‘national interest’. During this period, 40 industrial sectors were selected such as those which processed domestic raw materials, machinery and equipment and industries producing for national defence. Tariffs on competing imports were raised by up to 50%, and direct subsidies and easy loans were granted to encourage these sectors (Law 14630). The protectionist commercial policy of the previous years was reinforced by establishing a complex structure with different import duties, licences, quotas, prohibitions and implicit subsidies for different activities. Tariffs for consumer goods were higher than for capital goods[14]. Furthermore, local industry was helped by the system of State purchases by which, goods produced domestically were preferred to foreign ones.

[13] Statement quoted by P.Gerchunoff and L. Llach, Op. Cit., 2003, p. 185.
[14] The tariff system of imports was organised considering: (a) the amount of domestic added value, (b) a classification into consumer, intermediate and capital goods and (c) the existence of national supply.

The management of the exchange rate was a fundamental policy for the redistribution of resources between the agricultural sectors and the new emerging industry. This was done by tightly controlling the foreign exchange market and establishing multiple exchange rates. In 1946, the 'Instituto Argentino de Promoción del Intercambio' (IAPI) was created to regulate foreign trade. Its role was to buy crops from producers and sell these on the international market. The government received foreign currency, but the agricultural producers were paid in pesos at an official (lower) exchange rate. This provided the government with extra fiscal resources, which were used to subsidise key industries by giving preferential exchange rates for the import of capital and intermediate goods. The agricultural sector did not receive this benefit for importing machinery and other farm inputs.

As part of the policy of direct participation of the Sate in industrial activities, the level of public investment was raised sharply and oriented towards the areas of heavy industry, infrastructure and public utilities. This was aimed at managing areas considered critical and at solving the structural rigidities which existed in the supply of essential items for industry, which were regarded as obstacles to the progress of development. In this period, several State-run companies were established including Altos Hornos Zapla and SOMISA (steel production), ATANOR (petro-chemical), Yacimientos Carboníferos Fiscales (coal mining) and Merchant Marine (shipping). Moreover, services and utilities such as electricity, gas, railways, urban transport, telecommunications and water, all of which were foreign-owned, were nationalised. In connection with social and productive infrastructure, ambitious plans of construction of public housing, schools, hospitals, roads, ports and airports were undertaken by the State.

Important reforms were introduced in the area of labour legislation and wage policy: the pension fund system, organised through the unions, was greatly extended[15]. This was a system of *pay as you earn* by which workers paid contributions to a State fund

[15] A limited system of pension funds '*Cajas*' had existed since the beginning of the century: Some examples of these '*cajas*' are: public employees (1904), railway workers (1915), bank employees (1923) and merchant seamen and journalists (1939). However, it was only under Perón as Secretary of Labour and later as President that pension funds were set up for shop workers (1944) and factory workers (1946).

(‘*cajas’*) during their working life and drew their pensions on retirement. At the same time, the legislation was changed to improve working conditions by setting minimum wages, limiting working hours and giving protection to workers against unfair dismissal. The intention was to organise the workers into strong trade unions, which would then be in a better negotiating position with the capitalists.

In an attempt to have control over the financial flows and the destination of domestic savings, the Peronist government nationalised bank deposits in 1946[16]. This reform radically changed the functioning of the banking system, decisions as to fund allocation were now made exclusively by the Central Bank. Under the new regime, the financial intermediaries merely received deposits but did not have the power to decide *how* and to *whom* the credits should be granted. In this way, the government was able to set the interest rate and to direct the resources towards the economic sectors considered to have priority, in line with the idea of pushing on with the process of industrialisation by import substitution. During the period 1946-55, the institution used for channelling loans to industry was the ‘*Banco de Crédito Industrial Argentino*’ created in April 1944 and the Central Bank[17].

These policies contributed to the consolidation of a *new model* of capital accumulation around the manufacturing sector. The new development strategy relied heavily on the expansion of the domestic market as the driving force of the process of industrialisation by import substitution[18]. The main features of this model are[19]: (a) the State playing a

[16] Previously, a sound banking system had existed, but most of the credits were allocated to mortgages.

[17] An in-depth study of the role played by the ‘Banco de Crédito Industrial Argentino’ (which later, in 1971, was re-named Banco Nacional de Desarrollo BANADE) is presented in M. Rougier, ‘’El financiamiento bancario a las empresas industriales argentinas. Antecedentes y orígenes del Banco de Crédito Industrial Argentino’’, Estudios Interdisciplinarios de América Latina, 1999, 10, 2, Julio-Septiembre.

[18] In the literature this was known as the model of unbalanced growth. For a theoretical analysis of this type of development see A. O. Hirschman, Strategy of Economic Development, 1958, pp. 62-75. and A. O. Hirschman, “The Case Against One Thing At A Time”, in S. Teitel (ed.), Towards a New Development Strategy For Latin America,1992, pp. 13-19

[19] A formal economic model for this period of Argentina can be found in O. Braum and L. Joy, “A model of Economic Stagnation: A Case Study of the Argentine Economy”, The Economic Journal,1968, vol. 78, Dec. A. Porto, 1975 “Un Modelo Simple sobre el Comportamiento Macroeconómico Argentino en el Corto Plazo”, Desarrollo Económico, No. 59, vol. 15. A. Canitrot, “La Experiencia Populista de Redistribucion de Ingresos”, Desarrollo Económico, 1975, No. 59, vol. 15. A. Canitrot, “El Salario Real y la Restricción Externa de la Economía”, Desarrollo Económico,1983, No. 91

key role in the investment, financing, allocation and redistribution of resources; (b) the primary sector producing for both the local and external markets; and (c) a highly protected industrial sector, supplying capital and finished consumer goods exclusively to a reserved and restricted domestic market. In connection with the saving-investment process, the agricultural sector generated a surplus of foreign exchange which, in turn, was transferred to the public sector. This re-distribution of resources was carried out by means of export taxes and relative export prices, given that agricultural products were systematically discriminated against in the foreign exchange market[20]. These funds were used to finance the increased government expenditure on current and capital goods as well as to grant direct and indirect subsidises to the manufacturing sector. The public sector also financed its activities with funds obtained from subsidised credits, inflationary taxation and transfers from the pension fund system. In the industrial sector, a large source of investment finance came from the retained profits of the firms[21].

Although adjustments were made to this model of development, it remained essentially unchanged until the mid-1970s. In other words, there were differences in the emphasis of the measures and the type of instruments used by subsequent governments, but not in the ultimate goal: the achievement of a more sophisticated economy with a broad-based industrial sector. The remainder of this section is dedicated to the analysis of the performance of the ISI model over the period 1945-75 and its long-term consequences for the Argentine economy.

[20] The supply of agricultural exports was monopolised by the State at the IAPI - Instituto Argentino para la Promoción del Intercambio (*Argentine Institute for Exchange Promotion*).
[21] A thorough analysis of the different tools used for industrial promotion is provided by O. Altimir and J. V. Sourrouille, ''Los instrumentos de promoción industrial en la postguerra'', Desarrollo Económico, 1966, vol. 6 y 7.

## Table III.1

## Aggregate Supply and Demand, GDP, Industrial and Agricultural Outputs, 1945-75

(Index 1945=100)

| Period 1945-75 | Total Demand | Consumption | | | Investment | | | Exports |
|---|---|---|---|---|---|---|---|---|
| | | Total | Private | Public | Total | Private | Public | |
| Total growth | 195.8 | 217.4 | 221.1 | 189.2 | 484.8 | 457.7 | 522.1 | 140.1 |
| Average growth | 3.7 | 4.1 | 3.5 | 3.6 | 3.0 | 9.0 | 8.5 | 2.1 |
| Contribut. to growth | 110.3 | 49.4 | 45.6 | 3.8 | 49.7 | 19.4 | 30.3 | 0.9 |
| Output-share | | | | | | | | |
| 1945 | 107.1 | 80.5 | 71.4 | 9.2 | 10.3 | 6.0 | 4.3 | 16.3 |
| 1975 | 108.9 | 80.5 | 73.9 | 6.6 | 21.1 | 10.7 | 10.3 | 7.3 |

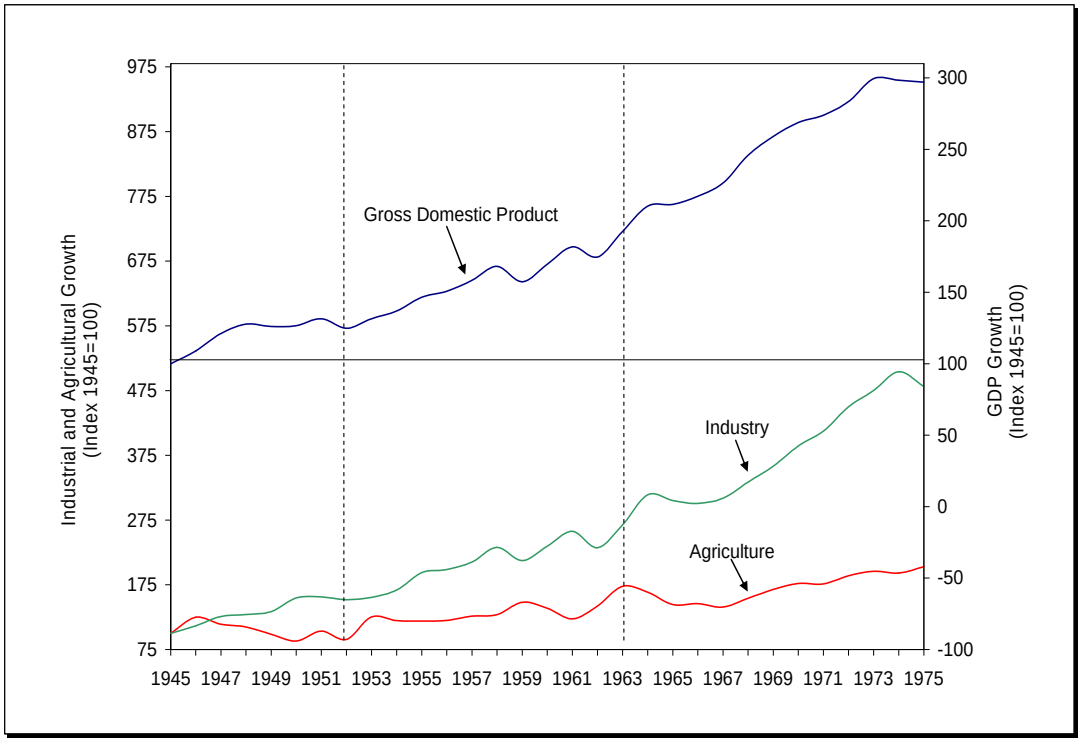
| Period 1945-75 | Total Supply | Imports | GDP | Agric.,Cattle and Fishing | Mininng | Industry | Construc. | Services |
|---|---|---|---|---|---|---|---|---|
| Total growth | 195.8 | 305.8 | 188.8 | 103.0 | 527.2 | 381.2 | 345.4 | 135.8 |
| Average growth | 3.7 | 7.3 | 3.5 | 2.7 | 7.0 | 5.5 | 6.2 | 3.2 |
| Contribut. to growth | 110.3 | 10.3 | 100.0 | 7.4 | 3.7 | 51.7 | 7.4 | 29.9 |
| Output-share | | | | | | | | |
| 1945 | 107.1 | 7.1 | 100.0 | 20.3 | 1.4 | 22.5 | 3.5 | 52.4 |
| 1975 | 108.9 | 8.9 | 100.0 | 13.1 | 2.8 | 38.0 | 4.6 | 41.5 |

Source: own construction based on data obtained from Memorias Anuales, The Central Bank of Argentina (BCRA), several annual issues, 1945-75, and Estudios, Estadísticas de la Evolución Económica de Argentina, 1913-1984, Instituto de Estudios Económicos sobre la Realidad Argentina y Latinoamericana, Fundación Mediterránea, Jul.-Sep. Año IX, No. 39, 1986

## Graph III.1

## Domestic and External Demand, GDP, Industrial and Agricultural Outputs, 1945-75

(Index 1945=100)




Source: own construction based on data obtained from Memorias Anuales, Op. Cit., 1945-75 and Estudios, Estadísticas de la Evolución Económica de Argentina, 1913-1984, Op. Cit., 1986

To begin with, there is a description of the main structural changes in the economy, with the aim of identifying the *stylised facts* to be explained later, which characterised the performance of the ISI model. The graph and table above present the evolution of the main components of aggregate supply and demand between 1945 and 1975. In this period, gross domestic product (GDP) had grown by 189%, which means an annual compound rate of 3.5% on average. In dollar terms, a rate of growth of 3.9% per annum was estimated, after correcting the distortions caused by local prices[22]. On the demand side, the most dynamic factors were total consumption and investment (domestic absorption) which grew by 217% and 485% respectively (3.9% and 6.1% on average). While the former explains more than 49.4% of the economic growth, the latter accounts for 49.7%. In contrast, the export sector (external demand) performed poorly - in absolute and relative terms - with an increase of 140% (2.9% per year on average), far below the performance of the internal demand. It should be stressed that the magnitude of these changes was so important that they ended up re-shaping the total demand structure: the proportion of domestic absorption (consumption plus investment) to aggregate output increased from 91% in 1945 to 102% in 1975, with the corresponding decline in output-share of the external demand from 16% to 7% (Table III.1 and Graph III.1).

Most of the new demand generated in these years was satisfied by local production. Mining, manufacturing and construction were the sectors which experienced the largest growth (527%, 381% and 345% respectively). However, the manufacturing sector explains most of the contribution to total growth (more than 52%), because of its weight in total output. The manufacturing expansion caused a modification of the sectoral composition of the production structure: the industrial sector increased its share in GDP from 22.5% in 1945 to 38% in 1975. At the other extreme, the lowest rate of growth occurred in the sector of agriculture, cattle and fishing (103%), which lagged behind

[22] Own calculation based on the estimation of the GDP levels of Argentina in dollars terms made by Angus Maddison, who used the Geary-Khamis approach for converting national currencies into a common unit. The Geary-Khamis approach takes into account the criteria of purchasing power parity of currencies and international average prices of commodities (terms of trade). For extra information, see A. Maddison, Monitoring The World Economy 1820-1992, OECD, 1995, pp. 162-69

and consequently, its output-share declined from 20.3% to 13.1% in the period under study (Table III.1).

The process of industrialisation by import substitution ***not*** only resulted in a progressive rise of the manufacturing sector in the generation of GDP, but also in the development of new and more complex industrial activities. Evidence of this is the rate of expansion of the production of capital and intermediate goods which more than doubled that of finished consumer goods (434% *versus* 126%). Most of this expansion (around 85%) is explained by the development of the industries of Chemicals, Rubber, Petroleum and Other Derivatives and Plastics as well as of Metal Products, Machinery and Motor Vehicles, which grew 485% and 584% respectively.

Graph III.2

Evolution of the Industrial Structure, 1945-75

(Percentage points)


Source: own construction based on data obtained from Memorias Anuales del Banco Central, The Central Bank of Argentina, several annually issues, 1945-75

As can be seen in the graph above, during the post-war years, the ISI polices brought about a profound transformation of the industrial structure: in 1945, the production of finished consumer goods accounted for 57% of total manufacturing output and that of capital and intermediate goods for 35.1% and, by 1975, these percentages had changed to 32% and 62% respectively.

In addition to local production, the expansion of the domestic demand was supplied by imported goods which grew by 306% (4.7% per year on average). However, in relative terms, due to the process of import replacement by local products, the proportion of imports in GDP declined by more than half, from 18.3% in 1944-46 to 8.5% in 1971-74. What is more, the reduction in the dependence on imported goods occurred together with a change in the demand structure of imports: in the mid-1940s, the proportion of finished consumer goods in total imports was 55% and of capital and intermediate goods was 45%, by the mid-1970s, these percentages stood at 25% and 75% respectively (Graph III.2).

The general impression that emerges from these figures is that the stated objectives of the ISI strategy were on their way to being achieved: increased industrialisation, import substitution and expansion of the internal market. However, for a developing economy with the resources of Argentina, the rate of growth of these years on average was *very low* by international standards, due to the fact that it was extremely uneven[23]: periods of growth were followed by periods of recession or economic decline. An explanation of why these cycles occurred is, therefore, crucial for understanding the poor economic performance of Argentina over the period 1945-75[24] [25].

---

[23] In the same period, Australia grew by 4.3% per annum, Spain 5.6%, Brazil 6.7%, México 6.3% and Canada 4.6%. Own calculation based on Maddison estimations. A. Maddison, 1995 Op. Cit., pp. 180-203

[24] There are several studies of the economic cycles of Argentina during these years, including: G. Di Tella and M. Zymelman, Los ciclos económicos argentinos, 1967; D. Heyman, ''Las fluctuaciones de la industria manufacturera argentina, 1950-78'', Documentos de Trabajo, CEPAL, No.4, 1980; J. Katz, ''Una interpretación del largo plazo del crecimiento industrial argentino'', Desarrollo Económico, (1969), 8, No. 32, pp. 511-42; R. Mallon and J. V. Sourrouille, La polítical económica en una sociedad conflictiva, 1975; A. Dorfman, Cincuenta años de industrialización en la Argentina, 1930-80, 1983.

[25] A chronology of the main political and economic events of Argentina during the period 1945-75 is presented in Appendix A to Chapter III.

Based on the nature of the prevailing economic dynamic, the period under analysis has been divided into two phases. The first goes from 1946 to 1963, during which the first stage of the process of industrialisation (replacement of imported finished consumer goods) was completed and the second stage (the establishment of heavy industry) was set in motion. The second phase covers the period 1964-75, when the industrial base was being consolidated. The analysis begins with a description of the economic and political factors which caused the main macro-economic imbalances and their effects on the level of activity, followed by an explanation of the short-term economic dynamic[26].

### III.2.1 First Phase 1946-63

This phase encompasses the administrations of Juan Domingo Perón (1946-55), the Armed Forces (1955-58) and the democratically elected Arturo Frondizi (1959-62). These were the years of the ascent of the ISI policy with active government presence. In this phase, total output grew by 60%; an annual compound rate of 2.7% on average. Manufacturing and construction were the sectors which experienced the largest growth (94% and 91% respectively). However, most of the contribution to growth (about 48%) is explained by industry, because of its weight in total output. The lowest expansion occurred in the sector of agriculture, cattle and fishing, which grew by 19% and thus, its output-share declined from 22.3% to 16.5%; even so this sector was still largely responsible for generating foreign exchange (Table III.1).

As part of a policy of income re-distribution and expansion of the internal market, in the first three years of the Five-year Plan - *Primer Plan Quinquenal* (1947-51), the Peronist government increased real wages by 56% and public expenditures on consumption and investment by 42%. This caused a marked increase in the internal demand, which led to rapid growth: total and manufacturing outputs grew by 25% and 29% respectively

[26] The main political and economic events of the period 1945-75 are summarized in Appendix A to Chapter III.

(7.7% and 8.9% per annum on average). The expansion in domestic absorption also resulted in an increase in imports of both intermediate and finished consumer goods while the value of exports - affected by the discriminatory trade and exchange rate policies - grew at a much slower pace, despite the high terms of trade for Argentina. This, in turn, generated an accumulated disequilibrium in the balance of trade of US$ 1,488 million. Given that in these years the country was closed to foreign capital, the external gap was financed by the reserves built up during the Second World War (about US$ 1,700 million). However, by the end of 1948, the international reserves in the Central Bank had fallen to less than US$ 150 million, while there were outstanding import permits for around US$ 1,500 million. On the internal front, the lax fiscal policy of these years tripled the public deficit, which rose from 5.4% of GDP in 1947 to 15.6% in 1948. In the same period, the amount of money in circulation (M1) in nominal terms increased by 87%. In this scenario, the lack of foreign exchange forced a nominal devaluation of 67%, which caused a dramatic economic contraction in 1949 (GDP fell by 4.9%) and, in the same year, inflation jumped from 13% to 31%.

The next three years were characterised by economic turbulence, high inflation (25-30%) and problems with foreign exchange, exacerbated by droughts in 1949/50 and 1951/52 which significantly reduced the supply of agricultural products for export[27]. In the labour market, several unions went on strike, discontented with the reduction in real wages which occurred in the early 1950s. All this made the government realise that major changes in the economic policy were needed to deal with inflation as well as to move ahead with the process of industrialisation. In 1952, after the re-election of Perón, an austerity plan which included price and wage controls as well as monetary and fiscal restrictions was applied. In the Second Five-year Plan - *Segundo Plan Quinquenal* (1952-57), the IAPI abandoned its discriminatory practices and began to encourage the export of agricultural products and the legislation which had previously restricted or discouraged foreign investment was amended in order to promote it.

[27] Total output grew by 1.5% and 3.9% in 1950 and 1951 and fell by 5.1% in 1953.

These policies proved effective in increasing foreign investment, reducing inflation and improving the external sector, which generated a new round of economic growth during the last three years of Perón's mandate. In September 1955, Perón was deposed by a coup d'etat led by General Eduardo Lonardi (*Revolución Libertadora*) and, thereafter, the Peronist Party was banned from participating in elections[28].

In the mid-1950s, the main economic concern was how to become self-sufficient in oil so as to sustain the rapid growth. However, in this year, the political cycle changed and with it, most of the mechanisms of market intervention including price controls, system of multiple exchange rates, quotas and prohibitions on imports, IAPI, nationalisation of the bank deposits and so on, were dismantled[29]. However, industrialisation by import substitution continued to be the objective of economic policy-makers in the second half of the decade. Over these years, the agricultural sector received further incentives to produce and export. However, as world prices in agricultural commodities had fallen by 35% since 1948, the resulting increase in export revenues was insufficient to redress the recurrent deficit in the external accounts. The other macro-economic disadjustment that was becoming endemic was the fiscal disequilibrium, which amounted to 5.5% of GDP on average in the period 1955-57 and, in the next year, increased to 9.6%.

As had happened ten years earlier, but this time more severely, the expansionist fiscal and monetary policies combined with the lack of foreign exchange culminated in a far-reaching economic crisis in 1959: total output fell by 6.4%, inflation jumped to 114% and real wages declined by 26%. This obliged the government of Arturo Frondizi (1958-62) to apply a stabilisation programme which included fiscal and monetary restrictions, limitations on wage increases and de-regulation of the foreign exchange market. At the same time, over these years, there was a serious attempt to undertake the final push in the process of industrialisation by expanding the development of basic

[28] The proscription of the Peronist Party was an important factor which latter undermined the legitimacy of the elected governments of Frondizi (1959-62) and Illia (1963-66) and wakened their ability to govern.
[29] On the political front, the National Constitution of 1853 reformed by Perón in 1949 was re-established.

capital intensive industries with important forward linkages - those supplying inputs for other industrial sectors. Priority was given to the extraction of oil and natural gas as well as to the expansion of the chemical and petro-chemical sectors and, particularly, to the automobile industry. With this aim, a new regulation related to foreign investment was passed (Law 14780). Important incentives were now offered to attract overseas investors in an attempt to ease the foreign exchange restriction. As a result, between 1960 and 1962, foreign direct investment grew sharply; which explains around one-third of the increase in the ratio of total investment to GDP from 15.7% in 1959 to 22% in 1962. The resulting rise in the internal supply combined with policies aimed at moderating the expansion of domestic absorption were successful in stimulating growth and reducing inflation: total output grew by 7.8% in 1960 and by 7.1% in 1961, while inflation slowed to 27.1% and 13.5% respectively.

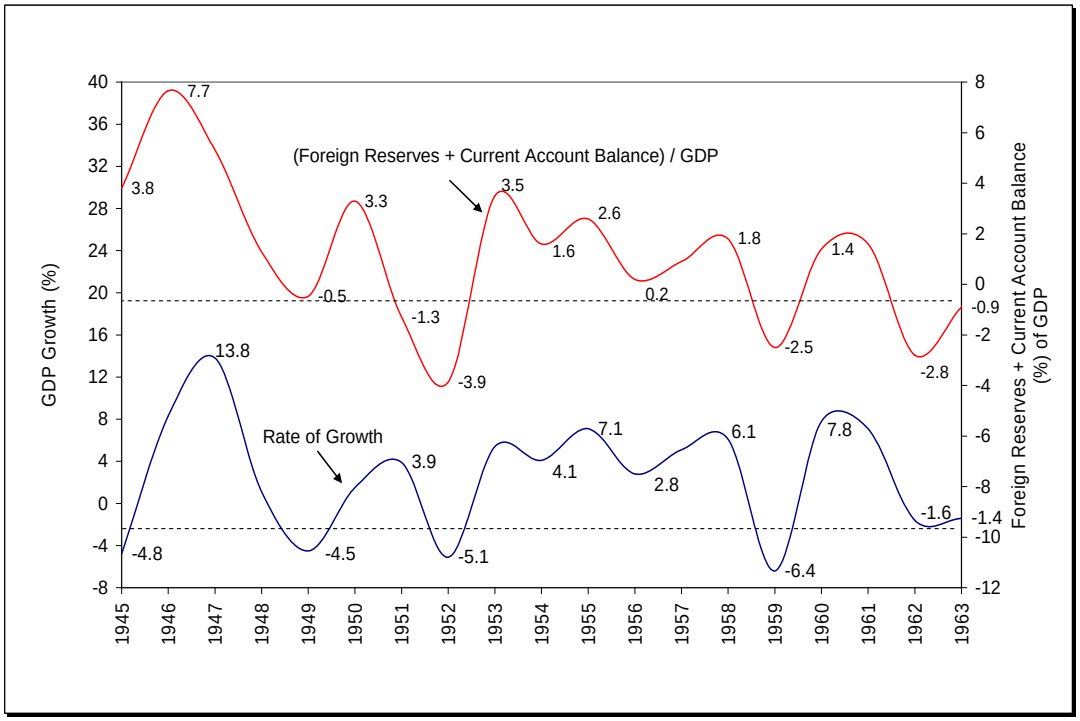
Although this attraction of foreign capital contributed to a rapid increase in production capacity and in per capita productivity across the manufacturing sector, it did *not* modify the previous anti-export bias of the industry: in 1960, non-agricultural exports amounted to US$ 43 million, or just 4.1% of total exports. In a period in which foreign capital inflows had started to dry up, this lack of dynamism of industrial exports combined with the poor harvests of 1960 and 1961 created a severe problem in the external sector. Once again, lack of foreign exchange put an end to a period of rapid growth and the economy fell into recession in the years 1962 and 1963 (GDP dropped by 1.2% and 2.4%) and inflation began to rise (28% and 26% per annum respectively). The economic downturn was aggravated by a political crisis which culminated in a *coup d'etat* and the removal of President Arturo Frondizi in 1962.

From the examination of the macro-economic performance during the first phase (1946-63), it can be concluded that there is a clear relationship between the instability in the rate of growth and the evolution of the country's external accounts, as can be seen in the graph below.

Graph III. 3

Rate of Growth and Foreign Reserves, 1945-63

(Percentage of GDP)




Source: own construction based on data obtained from Memorias Anuales del Banco Central, Central Bank of Argentina, several annual issues, 1945-75 and Estudios, Estadísticas de la Evolución Económica de Argentina, 1913-1984, Op.Cit, 1986

It is striking how close the correlation was between the rate of growth and the evolution of the stock of foreign reserves in the Central Bank plus (minus) the balance in the current account as a percentage of GDP. This can be rationalised as follows: periods of expansion in domestic demand - commonly the outcome of loose fiscal and monetary policy - led to output increases which, in turn, caused an increase in the demand for imports. Upswings in the level of activity continued up to the point where the growing import expenditures were no longer covered by export revenues. The decline in the amount of foreign reserves in the Central Bank resulted in a balance of payments crisis which, in turn, put an end to the original output increase. That is to say, the availability of foreign reserves marked the upper limit at which the country could remain in an expansionist phase. Thereafter, a down-cycle began with a nominal devaluation of the

peso, which caused an increase in the price of agricultural products and imported goods. This, in turn, generated a reduction in real wages which led to a reduction in domestic demand and an improvement in the external accounts. The re-establishment of a trade surplus eased the external constraint and helped the country to come out of the contraction phase and to start another cycle of prosperity[30]. This ''stop-and-go'' dynamic in the level of activity was a distinguishing feature of the Argentine economy in the period 1946-63[31].

It should be stressed that, over these years, problems in the foreign sector recurred as an inevitable result of previous periods of over-expansion in domestic absorption along with two features of the country's external accounts: (a) the characteristic of the export supply based on agricultural products; and (b) the high income-elasticity of the demand for imports. The former refers to the fact that the agricultural sector was unable to respond quickly to increased demand and consequently, higher internal consumption resulted in a lower amount of exportable goods. The latter is a natural outcome of the strategy of industrialisation by import substitution in which, import replacement of finished consumer goods requires extra imports of items - intermediate and capital goods - necessary for their manufacture. Furthermore, the economic growth leads to an increase in the level of national income, which creates a demand for all types of imports. As a result, the income-elasticity of the demand for imports may become greater than one and consequently, periods of negative import substitution are likely to occur. Diaz-Alejandro has confirmed this thesis for Argentina: in the period 1947-65, this income-elasticity reached 2.6% on average[32]. This means that the rise in imports was more than two and a half times that of the increase in total output.

Far from being smooth, the transition between periods of ups and downs in the level of

---

[30] An analysis of the role played by the foreign assistance in less developed countries can be found in H.B. Chenery and A. M. Strout, "Foreign Assistance and Economic Development", The American Economic Review , 1966, vol. LVI, Sept., pp. 679-733

[31] The term ''stop and go'' was coined by Díaz-Alejandro for Argentina. C.F. Díaz-Alejandro, Op. Cit. ,1970

[32] This refers to the *"apparent"* income elasticity of demand for imports which does *not* consider changes in relative prices, tastes, income distribution and availability of other durable goods. C.F. Diaz Alejandro, Op. Cit., 1970, pp. 226-8.

activity were characterised by price increases and significant forced re-distributions of wealth and income between sectors and economic groups. Distributive conflicts were the result of the way that the country adjusted to its external imbalance[33]. Commonly, a nominal devaluation, monetary tightening and an increase in the price of public utilities were the typical measures used to deal with a foreign exchange crisis from the late 1940s on. The adjustment to an external imbalance began with a nominal devaluation of the peso, which generated an increase in the cost of the agricultural products and imported goods. This, in turn, caused a re-distribution of income from wage earners to capitalists and from the manufacturing to the agricultural sector, generating a reduction in real income of the sectors with the highest propensity to consume (urban workers). With the reduction in the domestic absorption, the balance of trade began to improve[34].

However, the external adjustment was ***not*** attained instantaneously after the exchange rate adjustment. The re-distribution of income was fiercely resisted by capitalists and wage earners in the industrial sector. While the former passed on the higher import costs of industrial inputs by including them in the retail prices, the latter demanded nominal wage increases in order to sustain their level of consumption. In this 'game', capitalists accepted their worker's demands for increased nominal wages, as their industries supplied exclusively to the 'protected' domestic market. In effect, the high level of import tariffs allowed the industry to pass the higher cost of wages on to output prices without being threatened by foreign competition. During these years, an informal coalition made up of the 'losers' of a nominal devaluation (capitalists and wage earners) was being consolidated in the manufacturing sector so as to prevent a smooth re-distribution of income which would have benefited the agricultural sector[35].

---

[33] It should be stressed that the internal counterpart of a country's foreign disadjustment is as an ***ex-ante*** excess in domestic absorption. Consequently, given a level of total production, if a country tries to close its external imbalance, its domestic absorption should necessarily be reduced.

[34] This was so because the negative income-effect on the level of activity dominated the positive price-effect of changing the relative price between tradable and non-tradable goods. For a formal analysis of the re-distributive effects and the recessive impact of a devaluation see C. F. Diaz-Alejandro, "A Note on the Impact of the Devaluation and Distribution Effect", Journal of Political Economy, 1963, No. 71 and P. Krugman, and L. Taylor, "Contractionary Effects of Devaluation", Journal of International Economics, 1978, No. 8

[35] This point is analysed in depth by A. Canitrot, "La Experiencia Populista de Redistribución de Ingresos", Desarrollo Económico, 1975, No. 59, vol. 15.

In addition to the recurrent foreign exchange crises, the expansionist demand policies applied in these years generated a large deficit in the public accounts. Between 1946 and 1955, government over-spending caused a fiscal imbalance of 7.3% of GDP on average, with a peak of 15.6% in 1948. During the Peronist administrations, most of the public deficit had been covered by funds taken from the surplus in the newly-organised government pension fund system[36]. However, when this source started to dry up as workers retired and claimed their pensions; the government resorted to printing money to finance the fiscal gap: in the period 1956-63, more than half of this deficit (5.6% of GDP on average) was funded in this way[37].

The frequent use of the policy of exchange rate devaluation in an economy with bitter distributive conflicts and a large fiscal deficit contributed to the onset of an inflationary economy. The inflation rate which had averaged 2.2% per annum in the period 1940-44 jumped to 20.1% on average in the period 1945-58, with a low of 3.8% in 1954 and a high of 38.7% in 1952. As a result of the serious economic crisis, inflation rocketed to 114% in 1959 and thereafter averaged 23.7% per annum during the period 1960-63. This reveals that while the recurring foreign exchange crises were a salient feature of the first phase of the ISI model (1946-63), inflation was becoming endemic and would come to be the major challenge facing subsequent governments.

### III.2.2 Second Phase 1964-75

The second phase (1964-75) covers the governments of Arturo Illia (1963-66), the Armed Forces (1967-73) and the third Peronist administration (1973-75). However, the study will focus first on the years 1964-74, so as to eliminate the effect of the economic chaos of 1975 from the average figures for the period.

---

[36] This point is stressed by Cavallo. D. Cavallo and A. Pena, "Deficit Fiscal, Endeudamiento del Gobierno y Tasa de Inflación: Argentina 1940-82", Estudios, No. 26, 1983, p. 45

[37] The net balance of the pension fund system went from a surplus of 3% of GDP during the 1950s to a fiscal burden of about 1% during the 1960s. A. Guadagni, "Economic Policy during Illia's Period in Office, 1963-6", in G. Di Tella and R. Dornbusch (eds.) Op. Cit., 1989, pp.151

A widespread disenchantment with the model of industrialisation had begun to set in by the mid-1960s. Inefficiency and the inability to export were common problems in the manufacturing sector deriving from the lack of specialisation and the economy of scale and scope, as well as the policy of over-protection from foreign competition applied systematically by different governments[38]. For the first time, it was believed that the development strategy based on industrialisation by substitution of imports had run its course. However, this feeling disappeared rapidly during the second half of the 1960s, when there was a marked increase in manufacturing exports due to the important fiscal incentives offered by the government and an improvement in the management of the foreign exchange rate. With the relaxation of the foreign exchange constraint, a period of rapid industrialisation and uninterrupted growth took place in this phase.

Between 1964 and 1974, GDP grew by 71%; that is 5.5% per annum on average; more than double that of the previous phase. Domestic demand (consumption and investment) continued to be the main factor of growth and its participation in total output increased from 97.2% in 1963 to 100.2% in 1974. As mentioned earlier, there was an improvement in the performance of the export sector which increased at a rate of 2.7% per annum on average, compared with 0.93% in the previous phase. A large proportion of exports came mainly from the new industries in the areas of chemicals and petro-chemicals, paper, rubber and metal products and oil refineries, all of which had been established in the late 1950s and early 1960s. Moreover, this industrial expansion helped to raise the productivity of the agricultural sector from the beginning of the 1960s. Despite this growth, the output share of the export sector fell from 12.5% to 8.1% between 1963 and 1974. This was mainly due to continued discriminatory policy against the agricultural sector, which increased at only 1.7% per annum on average. In contrast, the manufacturing sector received a great impetus growing at 7% per annum on average and as a result, its participation in total output rose from 29.9%

[38] These were common problems of the ISI strategy in Latina America. See A. O. Hirschman, ''The Political Economy of Import-Substitution Industrialisation in Latin America", The Quarterly Journal of Economics, Feb., 1968, vol. LXXXII, No. 1, pp.1-32

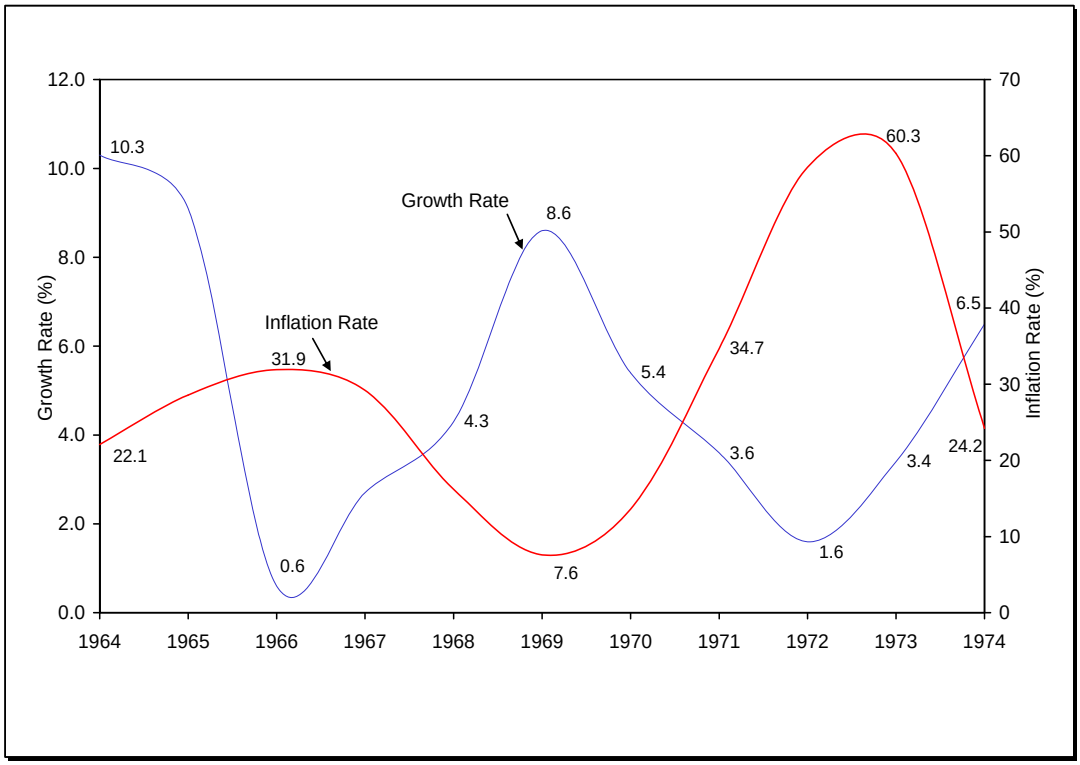
to 35.7% between 1963 and 1974.

Although the process of industrialisation continued and the economy grew every year, during this phase, the country exhibited its typical income cycle with marked oscillations in the level of activity. This time, however, the fluctuations in aggregate output were more pronounced but less disruptive than in the past.

Graph III.4

Growth and Inflation, 1964-74

(Percentage points)




Source: own construction based on data obtained from Memorias Anuales del Banco Central, The Central Bank of Argentina, several annually issues, 1945-75, and Estudios, Estadísticas de la Evolución Económica de Argentina, 1913-1984, Op.Cit, 1986

Graph III.4 shows that, in the period 1964-74, cycles of inflation and growth developed together inversely: periods of upswings in the rate of growth occurred in years of falling inflation and periods of slow-down in the level of activity coincided with accelerations of inflation (stagflation). When Illia came to power at the end of 1963, the country was experiencing an annual inflation of around 30% coupled with the most prolonged

recession since the Great Depression (stagflation). The primary goal, therefore, was the reactivation of the economy, which was attempted by raising public expenditure and permitting a general increase in wages[39]. At the same time, an innovative exchange rate policy of allowing frequent, small, nominal devaluations of the peso - crawling peg - was applied in order to sustain the competitiveness of exports and thus, reduce the risk of further foreign exchange crises. As a result, in 1964 and 1965, the economy grew by 10.3% and 9.1% respectively and the foreign accounts accumulated a surplus of around US$ 1,400 million. However, during 1966, the conflicts between workers and capitalists intensified originating a wage-price spiral. In this year, inflation rose to 32%, the rate of growth declined to 0.6% and the stock of foreign reserves in the Central Bank fell to US$ 122 million (just 11% of total imports). The worsening of the economic situation weakened the political position of a government with a fragile electoral base[40]. In June 1966, Arturo Illia was deposed by a military coup led by General Juan Carlos Onganía (*Revolución Argentina*).

During the period of military rule from 1967 to 1972, there was a new cycle of growth with moderate inflation followed by a period of recession with accelerated inflation. In 1967, the Minister of Economy Krieger Vasena launched a stabilisation plan different from those applied before. This consisted of a wage and price freeze and an expansionist monetary policy, combined with an ambitious programme of public investment[41]. At the same time, the domestic currency was devalued by 40% in real terms. These policies proved effective in promoting growth and reducing inflation: in 1967, 1968 and 1969, the level of activity rose by 2.7%, 4.3% and 8.6% respectively, and inflation declined from 29.9% in 1967 to 16.2% in 1968 and 7.6% in 1969.

The worldwide revolutionary climate of the late 1960s began to take root in Argentina, its first manifestation being a student protest in the city of Córdoba, which was brutally

[39] A law was passed establishing a minimum wage in 1966.
[40] Arturo Illia became President in 1963 with only 25% of the votes, due to the proscription of the Peronist Party.
[41] The monetary base was increased by 30% in 1967 and 27% in 1968.

put down by the government (*Cordobazo*). This resulted in the resignation of Onganía in 1969, and the initial success of the Krieger Vasena plan began to be affected by the growing political discontent. During the period 1970-72, the progressive loss of political control was reflected in a deterioration of the economic situation: the rate of growth fell from 8.6% in 1969 to 1.6% in 1972 and inflation started to rise reaching a high of 59% in 1972. At the same time, a growing deficit in the financial services account caused a foreign exchange crisis in 1971-72. On the political front, it was becoming evident that the continued proscription of the Peronist Party was unsustainable. In the elections held in 1973, Perón obtained an overwhelming majority and became President for the third time[42].

In 1973, Perón applied a more moderate version of the economic policy of his previous administrations. The Central Bank took control of bank deposits and was empowered to decide credit allocation, foreign trade was nationalised via the *Junta Nacional de Granos y de Carne* and foreign investment was permitted but strictly controlled. In order to deal with the immediate problem of rising inflation, the government, unions and the business sector agreed to freeze prices and wages, after salaries had been raised by 20% (*Pacto Social*). This was complemented by expansionist monetary and fiscal policies[43]. With idle capacity in the manufacturing sector and a surplus in the foreign accounts, these measures were successful in stabilising prices and reactivating the economy: the annual inflation rate fell from 60.3% in 1973 to 24.3% in 1974 and the rate of growth increased from 3.4% to 6.5%.

However, from the first quarter of 1974 on, the inconsistency between the policy of demand expansion and the wage and price freeze was becoming apparent. In many sectors, price distortions and 'black' markets started to emerge due to an underlying

[42] In the election of March 1973, Perón was not allowed to stand due to a ''residence qualification''. The Peronist Party led by Hector Cámpora was victorious and invited Juan Perón to return from exile. Cámpora resigned in July and in new elections in September, the formula Perón-Perón (Juan Perón and his wife - Isabelita) obtained 62% of the vote.

[43] Between 1972 and 1973, the public deficit increased from 4% of GDP to 7.9% and the monetary supply in nominal terms rose by 180% (around 30% in real terms).

inflationary pressure which was *not* taken into account by the policy of price control. By the middle of the year, it was clear that the economy was overheating. In the political arena, the government started to face considerable pressure from different sectors who conditioned their support in order to obtain specific concessions[44]. The alliance made by Perón between the capitalists and labour unions was beginning to crack and the political and economic tensions rose further after the death of Perón in July 1974[45].

During the government of María Estela Martínez - *Isabelita* (Peron´s wife and vice-president), there were various attempt to re-balance the market disadjustments, but all their efforts were in vain and inflation continued to accelerate. In mid-1975, a devaluation of 140% followed by wage increases of 150% exacerbated the inflationary process (34.9% in July, an annualised rate of around 3,500%) which, in turn, re-fuelled sectoral conflicts[46]. All this increased the turmoil in an already agitated political scenario with an escalation of violence on the part of various armed groups (both right and left wing). Likewise, political differences inside the Peronist Party became public thereby further damaging the impaired credibility of the government. In an atmosphere of disenchantment and lack of public support for the government, the economy headed towards stagflation (GDP dropped by nearly 1% and inflation rose to 183% in 1975), while political violence continued to grow in scope and intensity. In early 1976, inflation jumped spectacularly: prices increased by 14.8% in January, 19.3% in February and 34.6% in March (an annualised rate of more than 1,000%)[47]. This provoked the second hyperinflationary explosion in less than one year and the fifth replacement of the finance minister in less than one and a half years. Political and social unrest came to a head and the government's credibility hit an unprecedented low in these months. A final desperate effort was made to manage the situation by trying an austerity plan in

[44] These included nominal wage increases and better working conditions demanded by unions and more participation in the administration on the part of left wing of the Peronist Party.
[45] A political analysis of this period is found in D. G. Erro, Resolving the Argentine Paradox (1993), pp. 84-87; L. De Riz, Retorno y derrumbe. El útimo gobierno peronista, 1981 and J. C. Torre, Los sindicatos en el gobierno 1973-76, 1983
[46] This hyperinflationary explosion was named *Rodrigazo* in honour of the then Minister of Economy, Mr. Celestino Rodrigo.
[47] The wholesale price index (WPI) accelerated from 19.5% to 54.1% during January-March. This means an inflation of 17,832% per annum, if the WPI of March is annualised.

agreement with the International Monetary Fund (IMF). However, by that time, the country was on the threshold of a new institutional collapse. In late March, the long-anticipated military coup d'état, finally took place.

This overview of the main political and economic events of the second phase (1964-75) reveals that the cycles of growth and inflation were the consequence of the inability to establish a set of relative prices which could sustain simultaneously a distribution of income acceptable to both capitalists and workers and a rate of growth which would *not* endanger the solvency of the external accounts. On the one hand, when priority was given to balancing the foreign accounts, the prices of exportable goods (agricultural products) had to be high enough to restrict the internal demand and thus generate the required *quantities* for export. In this case, the level of general wages in real terms was too low to be acceptable to the workers, as most of their salaries were spent on products which the country was exporting. On the other hand, when the government tried to maximise economic growth with an acceptable distribution of income, the level of domestic absorption was high which meant, that real wages also had to be high and the rate of exchange low in real terms (overvaluation of the peso). In this case, the problem emerged on the external front, as the amount of foreign exchange generated was insufficient to maintain a high rate of growth for any length of time.

It should be stressed that the fundamental cause of the economic cycles during the first and second phases was the same: the *unstable* equilibrium between a distribution of income which was 'socially acceptable' and a rate of growth which was 'politically desirable'. However, in the period 1964-75, the nature of the economic problems was different because, by that time, a deep-rooted inflationary process had been established. This was the result of several factors which include: (a) the mechanism of monetary transmission to prices accelerated (*price through*), as the inflationary process became better understood by the economic agents; (b) the practice of both formal and informal price indexation became more generalised, which meant that the spiral of

price-wage increases became a habitual process[48]; (c) the fiscal deficit remained high and most of it was financed by printing money; (d) the size of the fiscal disequilibrium depended positively on the level of inflation because public expenditure, which was largely spent on salaries, tended to follow the rhythm of price increases and public revenues fell in real terms when inflation accelerated (Olivera-Tanzi-effect)[49]; and (e) the prevailing political instability undermined any attempt to resolve the fiscal disequilibrium. What is more, the weak political base of the successive administrations, which resulted largely from the proscription of the Peronist Party, severely limited the government's power to control the distributive conflicts among different economic sectors, something which contributed greatly to the political and institutional instability. In other words, during these years, there was a close cause-effect interaction between the political and economic cycles.

The implication of this macro-economic dynamic was that although the long-term goal of the ISI model of achieving a modern industrialised economy was never officially abandoned, it was relegated to second place behind the more pressing short-term problem of how to sustain high rates of growth and simultaneously bring inflation under control. At the same time, in this scenario of political and economic uncertainty, the private sector started to develop special survival skills, including a preference for the short-term in their investment decisions. The choice of the economic agents to be liquid and hence, more flexible, plus the continuation of the policy of protecting local industry from foreign competition resulted in a manufacturing sector which had began to fall behind the developed nations in terms of new technologies and industrial processes.

[48] As Díaz-Alejandro stressed, during these years, the cost-push elements - wage increases and nominal devaluation - played an active role in the inflationary process''. C. F. Díaz-Alejandro, Op. Cit. (1970), p. 373

[49] This refers to the well-known Olivera-Tanzi effect.. Olivera, "Money, Prices and Fiscal Lags: A Note on the Dynamic of Inflation", Banca Nazionale del Lavoro Quarterly Review, vol. 20, 1967, No. 28

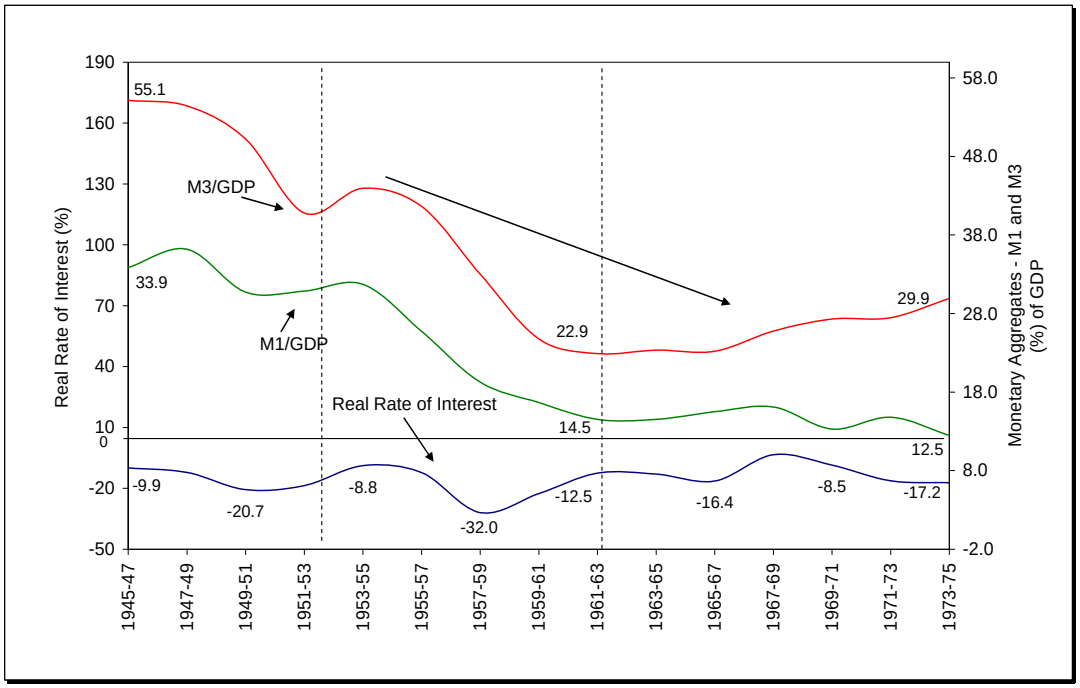
### III.2.3 Financial Policy 1945-75[50]

Another often ignored factor which helps to explain the generally disappointing rate of growth of Argentina is the effect of the ISI policy on the financial system and the productivity of capital, as shown in the graph below[51].

Graph III.5

Monetary Aggregates and Real Interest Rate, 1945-75

(Percentage points)




Source: own construction based on data obtained from Memorias Anuales del Banco Central, The Central Bank of Argentina, several annually issues, 1945-75 and Estudios, Estadísticas de la evolución económica de Argentina, 1913-1984, Op.Cit, 1986

In the period 1945-47, the stock of monetary assets as a proportion of GDP (M1/GDP and M3/GDP) declined by more than twenty percentage points, from 33.9% and 55.1% respectively to 12.5% and 29.9% in the period 1973-75. This extraordinary process of

[50] Detailed Studies of the financial policy of Argentina during ISI period are: A. Arnaudo, Cincuenta años de política financiera argentina (1934-1983), 1987; A. Arnaudo ''El Sistema Financiero'', Nueva Historia de la Nación Argentina, t. 8: La Argentina del Siglo XX, 2001; and M. Rougier, Industria, finanzas e instituciones en la Argentina: La experiencia del Banco Nacional de Desarrollo, 2004

[51] One exception to this are the works done by A. Taylor, ''Argentina and the World Capital Market: Saving, Investment and Capital Mobility in the Twentieth Century'', NBER, Working Paper 6302, 1997; A. Taylor ''Capital Accumulation'' in G. Della Paolera and A. Taylor, A New Economic History of Argentina, Op. Cit. 2003, pp. 170-96 and M. Véganzones with C. Winograd, Argentina In The 20th. Century: An Account of A Long Awaited Growth, OECD, 1997, pp. 197-230

de-monetisation was the consequence of a combination of inflation and a financial policy of systematically fixing the nominal rate of interest lower than the rate of inflation, which resulted in a negative return in real terms. As shown in Graph III.3, most of the time the interest rate on deposits in real terms was greater than -10% and that on loans more than -8% and in some years, they dropped to between -20% and -32% per annum. It should be stressed that this process of de-monetisation was much more marked in the first sub-period 1945-63, because the rate of growth of the monetary aggregates in nominal terms as a proportion of inflation was 32% lower than in the sub-period 1964-75. This is explained by: (a) the negative real rate on deposits was, on average, greater in the first sub-period than in the second (-17% *versus* -12% per year); and (b) the rate of growth of monetary assets in nominal terms was nearly double in the sub-period 1964-74 (53% *versus* 24%). This was so because, over these years, most of the public imbalance was financed by printing money, unlike in the period 1946-63, when the surplus in the pension fund system was used to finance a large part of this deficit.

Financial policy during the ISI period was based on the Keynesian theory of full employment, which prioritised the *quantity* rather than the *quality* of physical investment and failed to recognise the importance of an independent banking system for the overall efficiency of the saving-investment process: *screening and selecting projects and borrowers, monitoring the use of funds, managing risks and enforcing contracts*[52]. That is to say, the different administrations tended to see the financial system as merely a conduit through which funds (savings) were allocated in accordance with the governments' priorities. In practice, this meant that the Central Bank set interest rate ceilings on both deposits and credits and, in many cases, banks received directives as to which sectors/activities should be granted loans. What resulted fits the description given by Ronald McKinnon and Edward Shaw of a

[52] A revision of the role played by the financial system for the main school of economic thoughts is given in Chapter II, Section 2.

repressed financial system', discussed at length in Chapter II[53]. For these authors, the strategy of keeping negative or low real rates of return on financial assets has strong negative effects on economic development because: (a) it fosters current rather than future consumption (savings); (b) interest rate ceilings create a bias which encourages credit allocation to low-yielding-projects; (c) the inability of borrowers to obtain credits in *formal* financial markets and the unwillingness of lenders to lend at the prevailing market rates generate segmentation in capital markets; and (d) the lack of incentives for saving in domestic financial assets results in a shallow financial structure. These effects were seen throughout the ISI period and constitute another factor which helps to explain the low rate of growth on average of Argentina over these years[54].

To sum up, two deep political and economic crises marked the opening and the closing of a new model of accumulation. First, it began as an internal reaction to the problems of import shortages generated by the Great Depression and the Second World War. Thereafter, from the second half of the 1940s on, it was adopted as the official development strategy devised to encourage the process of industrialisation by import substitution. This model of accumulation remained in place until the onset of the political and economic crisis of the mid-1970s. By this period, although an important industrial base had been constructed the overall functioning of the economic system lacked dynamism and efficiency. This was the consequence of various factors including: (a) industry was overprotected and heavily subsidised; (b) most of the factories failed to reach the *optimal size* as they supplied exclusively to the local market; (c) pressure groups with vested interests in maintaining the *status quo* emerged around the manufacturing sector; (d) the policy of systematic discrimination

[53] The problems of the financial intermediation in developing countries were the result of the growing State intervention which implied - among other things - selective or sectoral credits, high reserve requirements, foreign exchange controls and interest rate ceilings on deposits and on loans combined with high rates of inflation. All these mechanisms were used by governments to obtain different goals such as: the transfer of resources from the financial system to the public sector, a reduction in the costs of financing fiscal deficits, the encouragement of private investments in areas regarded as priority by the authorities, as well as the maintenance of a high level of economic activity. According to these authors, all these practices lead to a state of 'financial repression'.

[54] The damage to the financial system caused by over-regulation and its effects on the economy as a whole is stressed by Howard Davies and David Green, ``it is clear that excessive regulation can damage the functioning of financial markets and reduce their economic utility''. H. Davies and D. Green, Global Financial Regulation. The Essential Guide, 2008, pg. 14

against the agricultural sector - the main generator of foreign exchange - had a negative effect on its long-term growth dynamic; (e) public regulations and direct State intervention prevented the appropriate running of several markets; and (h) the importance of generating savings in domestic financial assets and developing a sound financial system for an efficient allocation of funds was overlooked.

All the above factors created complacency and resulted in an inefficient and outdated industrial sector which, ultimately, depended on the foreign exchange generated by an agricultural sector. Moreover, expansionist demand policies originated recurrent foreign exchange crises and accelerated inflation. In turn, distributive conflicts between capitalists and labour unions caused high rates of wage increases in nominal terms, which further fuelled the inflationary process. In this scenario, the country developed a macro-economic dynamic characterised by cycles of growth and depression. These economic fluctuations were also exacerbated by - and in some cases contributed to - the high political and institutional instability, affecting the long-term economic growth.

Finally, it should be stressed that, besides the political and economic mistakes made in the implementation of the ISI, this State-directed-inward-looking development strategy was based on several assumptions which proved to be erroneous. First, the size of the domestic market was *not* sufficient to develop and sustain an efficient manufacturing sector. Second, the need for foreign exchange increased rather than decreased during the initial stages of the ISI. Third, the substitution of imports across the board failed to capitalise on the country's comparative advantages; and fourth, the consequences of the market distortions generated by an inappropriate State intervention in the economy ('government failures') were simply ignored.

By the mid-1970s, the Argentine economy was at a crossroads, while the country had achieved a broad industrial base, the weaknesses of the ISI were glaringly apparent. The question facing policy-makers was whether to attempt to correct these or to look for a new economic direction.

## III.3 IN SEARCH OF A NEW MODEL OF DEVELOPMENT

The first policies of the 1976 military government were designed to stabilise a situation characterised by hyperinflation, economic decline and default in external payments. For the new administration, however, the long-term solution required a fundamental change of the development strategy which the country had been pursuing since 1945. The new authorities believed that the policy of 'forced' industrialisation by import substitution and the size and role of the State were to blame for the poor economic performance of the previous four decades. This was neatly summarised by the Minister of Economy José Alfredo Martínez de Hoz: "since the 1930s, with only brief periods of respite, our governments have pursued a policy of manipulation of the exchange rates, export and import duties or taxes, or both at once, which have only distorted the economy and financed the growth now of one economic sector, now of another, at the expense of the one left in the lurch"[55]. In contrast, he believed that the liberalisation of the economy would restore efficiency to the market mechanisms and provide the bases for a rapid and sustainable growth. The intention was to build an *outward-looking-market-oriented* model of development which would allow Argentina to make the most of its comparative advantages by integrating the country into world trade and financial flows. To quote Bernardo Kosacoff: ''a programme of trade and financial liberalisation was organised with the aim of modernising and improving the efficiency of the economy based on a philosophy of full confidence in market mechanisms and in the subsidiary role of the State''[56].

The new administration had three main goals: (a) the reduction of inflation without an increase in unemployment, (b) the limitation of government intervention to the 'proper functions' of the State and (c) the transformation of the economy by opening it up to foreign trade. With this aim, an economic recovery plan was announced in April 1976

---

[55] Speech given by the Minister of Economy José A. Martínez de Hoz, Boletín Semanal, Ministry of Economy, No. 161, 24/XII/76

[56] B. Kosacoff, "Crisis y Estrategias de Industrialización'', Economía de América Latina, Documento del Centro de Economía Transnacional, Centro de Investigación y Docencia Económica, Vol. 12, p. 70

(*Programa de Recuperación, Saneamiento y Expansión de la Economía Argentina*) with reforms in the following areas/sectors[57]:

Market of goods and services: prices were to be freely determined by market forces. Government intervention in these markets would be eliminated so as to obtain a 'free' market allocation of resources. Accordingly, all prices - except that of labour - were to be de-regulated and the system of exchange control abandoned.

Labour market: an increase in the flexibility of the market would be promoted through a modification of existing labour legislation. In the new system, nominal wage increases would be given based on increases in labour productivity only.

Trade liberalisation and foreign direct investment: the opening-up of the economy to international trade and investment was considered essential for the elimination of price distortions generated by the ISI model. Quantitative barriers (quotas and licences) and restrictions on foreign investments were to be abolished. A programme of gradual tariff reduction would be introduced in order to increase international commerce and to improve national competitiveness.

Monetary reform and financial liberalisation: the de-regulation of the banking system and the liberalisation of interest rates were seen as fundamental measures to eliminate the negative real interest rate and to return to market mechanisms in the allocation of loans. In June 1977, a financial reform decentralised deposits (Law 21495) and allowed financial institutions to receive deposits and allocate credits under a system of free market determination of interest rates (Law 21526)[58]. At the end of 1978, restrictions on foreign capital movements were eliminated in an attempt to improve market competition within the banking system.

---

[57] Own classification of the structural reforms and the main measures contained in the economic plan. A full detail of this economic plan is found in the Boletín Semanal, Ministry of Economy, 143, 18/XI/1976

[58] Chapter IV presents a full account of the institutional reform of the financial system of June 1977.

Reform of the State: the size and activities of the public sector would be modified and reduced. The proposed changes in this area included the privatisation of firms and re-sizing of the public sector (elimination of activities and the corresponding personnel and company down-sizing). In accordance with the neo-liberal view, the State should withdraw from the productive sector and concentrate on activities that 'could not' be carried out by the private sector such as national defence and law enforcement. Another proposal was to undertake a broad restructuring of the tax system.

Following these policy guidelines, important economic reforms were carried out over the years 1976-81. Table III.2 summarises the sequence of policies applied during this experiment of stabilisation *cum* structural reform[59].

Table III.2

Sequence of the Stabilisation Policies and of Structural Reforms, 1976-81

| Economic Policy | 1976 | 1977 2-4th Qs. | 1978 4th Q. | 1979 | 1980 | 1981 |
|---|---|---|---|---|---|---|
| ***A. Stabilisation*:** | | | | | | |
| Monetary restriction | • | | | | | |
| Fiscal restriction | • | | | | | |
| Wage freeze | • | | | | | |
| Price truce | | • | | | | |
| Exchange rate ''tablita'' | | | • | • | • | • |
| Tariff reduction | | | • | • | • | • |
| ***B. Structural Reform:*** | | | | | | |
| Market deregulation (goods/services) | • | | | | | |
| Labour reform | • | | | | | |
| Unification of foreign exch. Market | • | | | | | |
| Foreign trade reform | • | • | • | • | • | • |
| - quantitative restriction | • | • | • | • | • | • |
| - tariff reduction | • | • | • | • | • | • |
| Foreign direct investment | | | | | | |
| Monetary and financial reform | | • | • | • | • | • |
| - banking reform | | • | | | | |
| - opening to foreign capital markets | | | • | • | • | • |
| Reform of the State | • | | | | | |

Dots (•) indicate the period in which the policy/instrument was first used or continued to be used.
Source: own construction based on Argentine Economic Development, Ministry of Economy, April 1976-December 1980

[59] Appendix B to Chapter III presents a chronology of the institutional and economic reforms applied in these years.

From the beginning, great efforts were made to bring inflation under control. The new government believed that the policies for the short- and the long-term, constituted parts of a ”global, coherent and indivisible” programme which would take Argentina from … ”an economy of speculation to one of production”[60]. This opinion was based on the view that stabilisation policies were needed to control inflation but that a profound transformation of the economy was essential to secure and to reinforce the achievements in price stabilisation. This explains why over the period under study; there was a simultaneous application of anti-inflationary and structural reform measures. ‘’The new team not only adopted short-term measures to cope with the (economic) situation but also carried out some important structural reforms, of which the most radical took place in the financial sector’’[61]. In effect, between April 1976 and December 1978 some polices were designed to change the dynamic of inflation (monetary and fiscal restrictions and price and wage freezes) and others to change the bases of the ISI model (market de-regulation as well as trade and financial reforms). However, as the inflationary process persisted, from the beginning of 1979 on, the policies which were originally designed for the long-term - especially trade and financial liberalisation - started to be used for short-term purposes as anti-inflationary tools (Table III.2).

The remainder of this Chapter is dedicated to the analysis of the country’s economic performance over the period 1976-81. The present section begins with a description of the policies applied and expands on the short-term macro-economic dynamic, including the evolution of the level of activity and the results obtained in the fight against inflation. To this end and due to the change in approach which occurred at the end of 1978, the period under analysis has been divided into two phases: from April 1976 to December 1978 and, from January 1979 to March 1981. Finally, an evaluation of the structural consequences for the Argentine economy resulting from these policy-reforms is

[60] Boletín Semanal, Ministry of Economy, Op. Cit., p. 5
[61] T. J. T. Baliño, ‘’The Argentine Banking Crises’’, IMF Working Paper, Nro. 103/87/77, pg. 5. (the word within brackets is added).

presented in the last section.

### III.3.1 First Phase 1976-78

The economic situation in 1975 and early 1976 was characterised by an excess of domestic absorption (consumption and investment) above the level of total output and a high fiscal imbalance. Whereas the former explains the disequilibrium in the balance of trade and the low stock of foreign reserves in the Central Bank, the latter explains the large monetary expansion and high inflation of these years. In addition, as discussed in the previous section, these macro-economic disequilibria were occurring against a background of recession, generalised supply shortages and 'black markets', which were the result of the policy of government intervention in market prices applied by the Peronist administration.

To deal with this, the government adopted an orthodox plan based on monetary, fiscal and wage restrictions. This phase was named ''*período de sinceramiento*'' in which, market prices were allowed to find their 'true' levels and this, in turn, would lead to an adjustment of the macro-economic imbalances. In the words of the Minister of Economy Martínez de Hoz, the policies to be implemented were aimed at promoting ''economic reactivation, reducing inflation, strengthening the balance of payments and eliminating limitations on trade and payments in foreign exchange''[62].

As part of a plan agreed with the International Monetary Fund (IMF), price controls and quantitative restrictions were eliminated in all markets of products and services, except for minimum wages which remained under government control (Law 21307)[63]. This policy was aimed at redressing relative prices while avoiding the wage-price spiral which had been occurring since mid-1975. Furthermore, restrictive fiscal and monetary

---

[62] Boletín Semanal, Ministry of Economy, Op. Cit., p. 9

[63] After the suspension of collective bargaining in July 1975, the official minimum wage and the family allowances were set by the government.

measures were applied in an attempt to reduce domestic absorption (consumption and investment) and to close the external disequilibrium[64].

For the government, the main cause of inflation was the monetisation of the large fiscal deficit which had reached 13.5% per annum in the first quarter of 1976 (Table III.3). It was decided, therefore, that the sources of inflationary financing of the government deficit should be eliminated. To this end, public utility tariffs were raised and new taxes were introduced - taxes on financial assets, bank loans, capital, land, property and motor vehicles - and the value added tax (VAT) was increased from a rate of 13% to 16%. The government estimated that these measures would generate extra revenues equivalent to 3% to 4% of GDP[65]. Moreover, in an attempt to reduce the erosion-effect caused by inflation on fiscal revenues in real terms (Olivera-Tanzi effect), the period of tax collection was shortened and unpaid-taxes were indexed[66].

With regard to fiscal expenditures, transfers of funds from the National Treasury to the Provinces and to State-owned enterprises were also reduced. These measures were complemented with a tight monetary plan, which included interest rate increases and strict control over the credit expansion to the public and private sectors. In addition, to deal with the monetary-effect of the fiscal deficit and to improve the management of the capital markets, new financial instruments were introduced, including a public bond adjusted by inflation (*Valores Ajustables Nacionales*)[67].

At the beginning, the critical position in the external accounts forced the government to reschedule short-term debts and to obtain new loans in the international market. The stand-by agreement signed with the IMF in August 1976 was aimed at securing fresh

---

[64] Targets for reduction of the fiscal deficit and the minimum stock of foreign reserves held by the Central Bank were included in the two contingent agreements made in 1976 and in 1977. For a complete analysis of these agreements see J. M. Fanelli and R. Frenkel "La Argentina y el Fondo en la Década Pasada", in EL FMI, el Banco Mundial y la Crisis Latinoamericana, Sistema Económico Latinoamericano (Ed.), Mexico 1984.
[65] J. M. Fanelli and R. Frenkel "La Argentina y el Fondo en la Década Pasada", Op. Cit., (1984)
[66] J. H. G. Olivera, Op. Cit. (1967).
[67] A complete analysis of the monetary and financial situation of Argentina in this period is given in Chapter IV, Section 2.

funds, and helping the country to re-negotiate terms with private foreign creditors[68]. With the same aim, only long-term private investment projects - taking five years or more to complete - were allowed to be financed with foreign loans. The enforcement of this was carried out by the monetary authority, which established a monitoring of the level of indebtedness of the private sector in the international capital market. At the same time, the country needed to improve its net foreign position by generating a trade surplus. External tariffs and the exchange rate were the instruments used for this goal. Import tariffs were reduced by 40% (from a average rate of 93% to 52%), in conjunction with a reduction in export taxes on agricultural products from a rate-range between 10% and 50% to one of between 5% and 25% (National Government Decree 3008/76)[69].

However, in contrast with the pre-1976 period when export promotion had often been accompanied by the imposition of restrictions on imports, the level of tariff protection for local manufacturers was now reduced. Moreover, quantitative restrictions on imports were gradually eliminated and the system of import licensing was simplified. This was complemented with a new regime for foreign direct investment approved in August 1976, which treated national and foreign capital on an equal basis (Law 21382). The only condition required was an authorisation of the government for foreign investors for projects in the areas of defence and national security, energy, education, insurance and financial activities and in the provision of the following public services: electricity, post office, gas, communications, transport, television, radio, newspapers and publishing.

A gradual unification of the dual exchange rate system was carried out between March and November 1976. Over this period, the effective nominal rate of exchange at which commodities were traded was made up of a variable proportion of the two prevailing

---

[68] Argentina sent a *memorandum* requesting an agreement with the IMF in July 1976.

[69] Between June 1976 and July 1977, export taxes on wool were reduced from 33% to 16%; on wheat from 56% to 5%; on corn from 46% to 16%. J. J. Nogués "La Economía Política del Protecionismo y la Liberalización en la Argentina", Desarrollo Económico, 1988, vol. 28 No. 110, p.23

rates. In practice, this exchange regime operated as a hidden crawling-peg mechanism which contributed to the increase of the effective rate of exchange for exporters and importers until the final unification and 'liberalisation' of the system in November 1976. From then on, all types of foreign exchange transactions were carried out in a 'free' market, except for the case of financial swap operations[70]. Subsequently, a crawling peg system was adopted until the first quarter of 1978 when the rate of exchange was modified almost daily by the Central Bank by means of market operations - buying and selling dollars.

Table III.3

Key Macro-economic Variables, 1975-78

| Economic Variable | 1975 | 1976 | | 1977 | | 1978 | |
|---|---|---|---|---|---|---|---|
| | | I | II | I | II | I | II |
| Rate of growth (% GDP) | -0.9 | -2.0 | 1.5 | 5.7 | 7.2 | -4.4 | -2.5 |
| Inflation rate - WPI (%) | 348.3 | 228.0 | 48.3 | 51.7 | 62.9 | 57.6 | 54.3 |
| Inflation rate - CPI (%) | 334.8 | 174.9 | 62.8 | 52.8 | 70.3 | 69.5 | 59.2 |
| Current account (in millions of US$) | -1,289 | 124 | 507 | 796 | 463 | 980 | 806 |
| Trade balance (in millions of US$) | -985 | -534 | 1417 | 895 | 595 | 1,410 | 1,156 |
| Capital account (in millions of US$) | 177 | -487 | -198 | 395 | 529 | 789 | 672 |
| Foreign reserves (in millions of US$) | 619 | 321 | 1,491 | 1,616 | 2,423 | 5,770 | 6,037 |
| Real exchange rate 1975=100 | 100.0 | 108.5 | 122.6 | 123.7 | 100.1 | 93.4 | 82.6 |
| Nominal peso deprec. (%) | 344.1 | 186.0 | 71.5 | 36.2 | 27.9 | 45.2 | 45.8 |
| M1/GDP (%) | 8.7 | 7.0 | 7.0 | 7.0 | 6.5 | 6.5 | 6.2 |
| Real wages 1975=100 | 100.0 | 97.5 | 72.3 | 70.6 | 67.1 | 63.0 | 64.0 |
| Fiscal deficit (% of GDP) | 14.1 | 13.2 | 12.5 | 12.1 | 11.6 | 11.2 | 9.6 |

Source: own construction based on data obtained from Memorias Anuales del Banco Central, The Central Bank of Argentina, several annual issues, 1976-81; D. Cavallo and F. Peña "Deficit Fiscal, Endeudamiento del Gobierno y Tasa de Inflación en Argentina 1940-1982", Revista de Estudios, June (1984).

As can be observed in Table III.3, in a few months, the policies adopted had proved effective in closing the disequilibrium in the external accounts and in bringing down inflation. Credits obtained from the IMF as well as from other foreign lenders increased the stock of international reserves and reduced the amount of outstanding financial swap operations in the Central Bank. Moreover, these funds helped to reduce - to a large extent - the degree of uncertainty in the foreign exchange market and to reverse the outflow of capitals, thereby further strengthening the country's reserve position. By

[70] The unification and liberalisation of the exchange market was a commitment made by the government in the contingent agreement signed with the IMF. J. M. Fanelli and R. Frenkel Op. Cit., 1984, p. 32.

mid-1976, the main factors which had exerted pressures on the 'parallel' exchange market between January and March had disappeared. On the commercial front, as a result of the real devaluation of the peso, the balance of trade passed from a deficit of US$ 534 million to a surplus of US$ 1,417 million between the first and the second half of 1976. The surplus in the balance of trade plus the funds borrowed by the country helps to explain the increase in the stock of foreign reserves to around US$ 1,500 million by the end of the first year (Table III.3).

As part of a general strategy of demand restriction, in the first year, the fiscal imbalance was reduced by 2% of GDP (from 14.9% to 12.9 % of GDP), due, to a large extent, to an increase in public revenues (Table III.3). This policy was complemented with a reduction in monetary growth as a source of government financing, which went from 50% of the total public deficit in 1975 to 25% in 1976. With regard to the wage policy, every quarter, the basic wages - *salarios básicos de convenio* - were raised at a rate much lower than inflation and thus, real wages underwent a notable decline. This was particularly severe in 1976, when real wages declined by 28%. This fall in wages continued in 1977 and by the end of this year they had reached a level 33% lower than that of the beginning of 1976 (Table III.3). This was made possible by severe restrictions on trade union activities and public protests[71].

As a result, the level of domestic absorption fell and the economy was able to generate a surplus in the trade accounts of 3.4% of GDP during the second half of the first year. The policy of demand restriction contributed to a rapid drop in inflation: the increase in consumer prices went from 78.3% in the first quarter to 54.2% and 21.6% in the two subsequent quarters respectively. This was even more significant in wholesale prices, which declined from 136.8% to 38.5% and 24.8% over this period respectively[72].

In short, by the third quarter of 1976, several indicators show the improvement in the

[71] During these years, many trade union activists were arrested and others fled the country.
[72] Own estimation based on data obtained from Memorias Anuales del Banco Central, The Central Bank of Argentina, several annual issues, 1976-81.

macro-economic situation of Argentina compared with the previous year. The balance of trade and current account had been transformed from deficits to surpluses, the amount of international reserves had tripled, the financial relationships with the foreign capital markets and the IMF had been restored, the fiscal disequilibrium had been reduced, the real exchange rate had risen by more than 20%, inflation had fallen markedly, and most market prices had started to operate freely again (Table III.3).

This economic adjustment was *not* achieved without paying a high price. Over the first seven months of 1976, total production and gross domestic investment dropped by 2.5% and 8.9% respectively[73]. This situation, however, was reversed in the rest of the year, and the country saw a period of prosperity in the next year: aggregate output rose by 5.7% and 7.2% in the first and second half of 1977 respectively. The main engines of growth were investment and exports, mainly of primary products. On the supply side, the reactivation was driven by the agricultural sector and then spread through the economy. At the same time, in 1977, there was a surplus in the balance of trade of US$ 1,490 million due to a significant increase in the terms of trade - the value of exports rose by 50%, while the value of imports increased by 23% (see Table III.3).

The joint result of a high rate of growth and an increasing foreign trade surplus was atypical, if the history of Argentina of the previous thirty years is taken into account[74]. It came about because of the expansion of the agricultural supply, which helped to ease the foreign exchange constraint, in a year in which private and public consumption remained constant. Besides the evolution of the terms of trade, this was the result of the fiscal measures which cut current expenditures and to the wage policy which forced down the purchasing power of the workers. As was affirmed by Juan Sourrouille …. ''from this data, it seems evident that the Argentine economy was undergoing one of its classical cycle movements of adjustment after an orthodox stabilisation plan, based on

[73] If these negative results are added to the decline of the previous year, total output and gross domestic investment accumulated a fall of 3.2% and 17.5% respectively in the period January 1975 - October 1976.
[74] As was discussed in earlier in Section 2, a recurring feature of the (ISI) model was periods of growth combined with disequilibria in the balance of trade.

a massive exchange rate devaluation''[75].

However, as can be seen in Graph III.6, the initial success in reducing inflation was short-lived and by the end of 1976, it had again become the major cause for concern for the government. In early 1977, due to a generalised process of price indexation on the part of the economic agents, inflation resumed its upward trend and consumer and wholesale prices increased by 25.8% and 26.5% respectively in the first quarter. In an attempt to halt this process, the authorities decided to change the policy and a price freeze was imposed on the products of the 700 most important industrial companies for 120 days in March (Ministry of Economy, Resolution No.189). This marked the end of the period of price redress "*período de sinceramiento de precios*". The new approach was justified by the Minister of Economy Martínez de Hoz with this speech: ''today, after one year and under different circumstances, what is required is a different therapy … I formally request businessmen to absorb the increase in nominal wages of 30% in March; and to maintain the price levels of February, without passing the new costs onto consumers for a period of 120 days''. This call to business for social responsibility was accompanied by a veiled threat: … 'in the past, it was observed that some sectors or companies took advantage of their monopoly or oligopoly position in the market to carry out frequent and steep increases in prices. I want to warn you that from now on this type of practices will be identified and, if necessary, we will take all the measures at our disposal, including the reduction of import tariffs, to put an end to irresponsible business practices''[76].

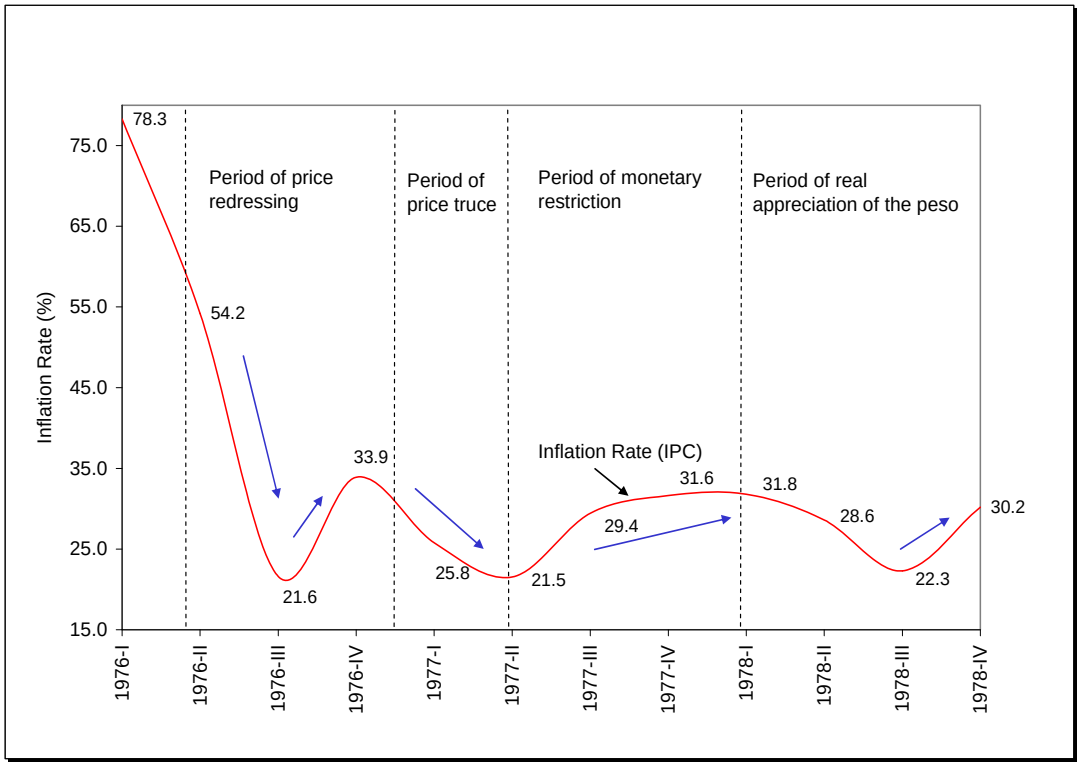
[75] J. V. Sourrouille, B. Kosacoff and J. Lucangelli, Transnacionalización y política económica en la Argentina, 1985, pp. 86

[76] Declaration of José A. Martínez de Hoz, Boletín Semanal, Ministry of Economy, No. 172, 14/III/77, p. 15

Graph III.6

Quarterly Inflation Rates, 1976-78

(Consumer Price Index - CPI)




Source: own construction based on data taken from Memorias Anuales del Banco Central, The Central Bank of Argentina, several annual issues, 1976-81.

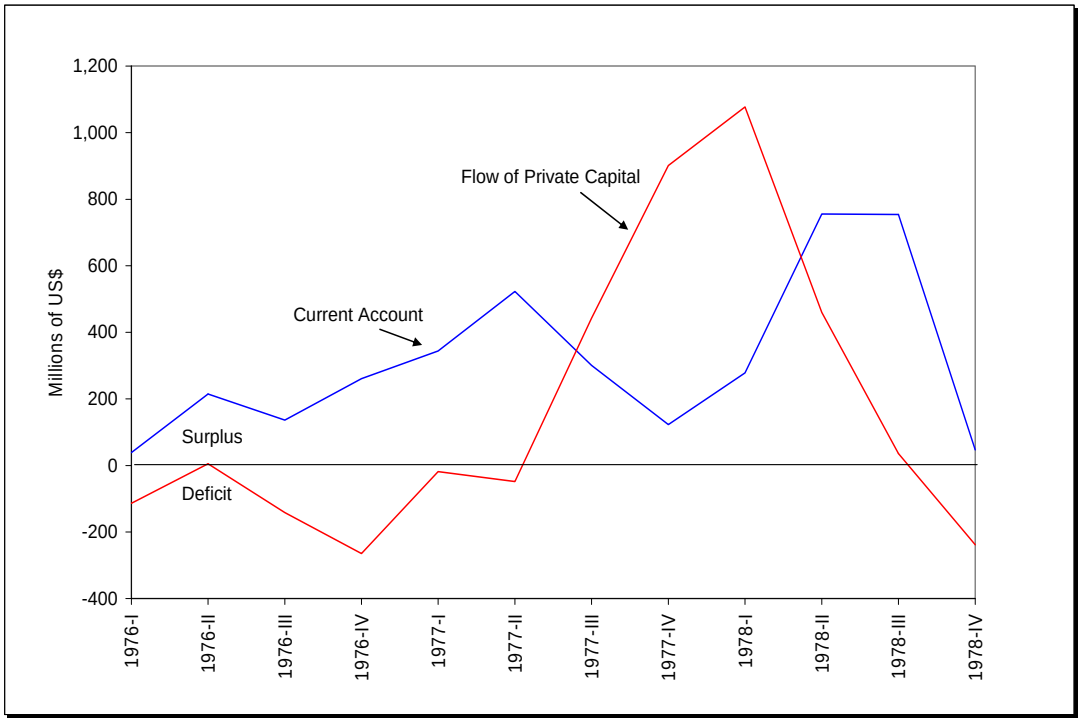
Based on the belief that the inflationary process was fuelled by individual expectations, a *price truce* was proposed to reduce the inertial-effect of price increases. As a result, inflation of consumer and wholesale prices declined somewhat from a monthly rate of 8.3% and 7.1% in February respectively to 6.5%, and 6.3% in May - representing a quarterly rate of 21.4% and 16.7% in the period between March and May of 1977. However, this dis-inflation was just a temporary phenomenon, since price increases started to accelerate again as soon as the truce ended in June (Graph III.6).

The dynamic of inflation of these years is explained - to a large extent - by the evolution of the current account of the balance of payments and the capital inflow from abroad.

Graph III.7

Current Account and Private Capital Movements, 1976-78

(Millions of dollars per quarter)




Source: own construction based on data obtained from Memorias Anuales del Banco Central, The Central Bank of Argentina, several annual issues, 1976-81.

The graph above shows that, in the first half of 1977, there was a growing surplus in the current account, with a maximum of US$ 522 million in the second quarter. This was attributable to the increase in the real exchange rate of approximately 25% since March 1976. For the government, the monetary expansion caused by the trade surplus was to blame for the failure to bring inflation under control during the price truce period (see Graphs III.6 and III.7). This served to convince the monetary authorities that they lacked the policy-tools to deal with inflation, and that a comprehensive structural reform of the financial system could no longer be postponed. Furthermore, the liberalisation of interest rates was a cornerstone of the economic reforms of the military government, intended to encourage saving rather than consumption, which would help to control inflation in the short-term and would increase investment and consequently, stimulate growth in the long-term.

On June 3rd. the financial institutions were given the freedom to set interest rates and to allocate credits based on market forces[77]. The hope was that this would stimulate the demand for local financial assets and this, in turn, would provide a better control of the money supply. After the financial reform, the annual lending rates in real terms in the financial markets increased sharply from 6.2% to 52% over the third quarter[78]. At the same time, it was decided to slow down the rate of nominal devaluation in an attempt to moderate the effect of prices of tradable goods on local inflation and to reduce the monetary effect of the high surplus in the trade accounts. A restrictive monetary policy was, therefore, the main tool used in the battle against inflation in the second semester of 1977.

However, the reduction of inflation did *not* go as expected and two factors account for this. Although the foreign trade surplus saw a moderate decline, the marked increase in the interest rate in real terms had the unforeseen consequence of attracting large amounts of foreign capital in the second half of this year (US$ 1,450 million), which resulted in an extraordinary increase in the money supply, exactly the opposite of what was desired (Graph III.7). Furthermore, the appreciation of the peso in real terms was mitigated by an increase in the terms of trade of exports of primary products, which worked against the expected decline in the trade surplus[79]. In fact, the external sector was responsible for an expansion of 85% in the money supply over this period. Consequently, there was *no* reduction in inflation, and consumer and wholesale prices went up by 29% and 27% in the third quarter and by 32% and 28% in the last quarter of 1977 (Graph III.6).

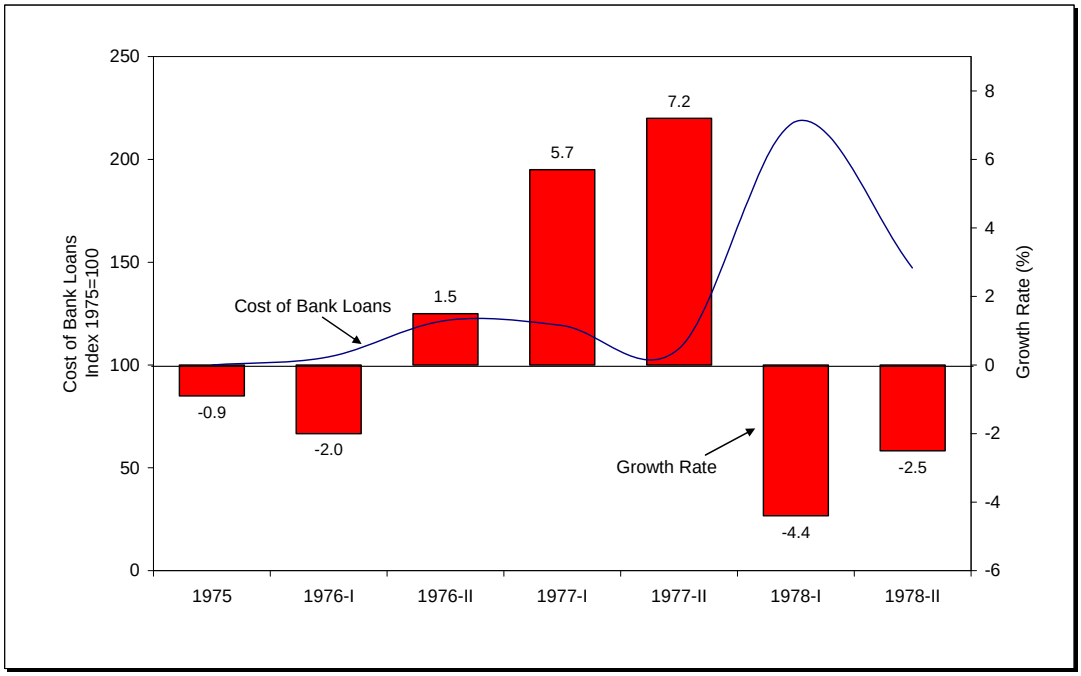
In addition to the monetary problems generated by the over-adjustment of the domestic demand which resulted in a high external surplus, the policy of monetary restriction started to have a negative effect on the real side of the economy in the last quarter of

[77] A detailed description of the institutional reform of the financial system is given in Chapter IV, Section 3.
[78] Chapter V is dedicated to the analysis of the factors responsible for these high rates of interest.
[79] The value of Argentine exports in terms of imports increased by 40% over the years 1976-77.

1977. This is shown in the graph below, which depicts the relationship between the rate of growth in period (t) and the lending rate of the preceding six month-period (t-1).

Graph III.8

Economic Growth and Cost of Bank Loans, 1976-78




Source: own construction based on data taken from Memorias Anuales del Banco Central, The Central Bank of Argentina, several annual issues, 1976-81.

As can be seen in Graph III.8, there is a close negative relationship between the level of activity and the cost of bank loans (lending rate) with a delay (lag) of six months. The rise in interest rates which occurred during the second half of 1977 (shown graphically in the first half of 1978) was so dramatic, that it led to a reduction in the demand for finished consumer goods and physical investment which, in turn, resulted in a fall in the rate of growth from 10% of GDP in the third quarter to 4% in the fourth quarter of 1977.The slowdown in the level of production continued thereafter and, by the end of first quarter of 1978, the country had entered into a deep recession with high and accelerating inflation.

By March 1978, two years after the beginning of the programme, the macro-economic

results had been disappointing: aggregate output had declined to the level of mid-1977, annual inflation continued to run at more than 150% (around 25% per quarter) and the surplus in the foreign sector had generated an excessive monetary expansion (Table III.3). For the government, however, all the troubles were due to the large surplus in the external sector (Graph III.7). The Minister of Economy Martínez de Hoz stated … "we are in an exceptionally favourable situation with positive results in the balance of trade and current accounts and a large stock of international reserves as a result of a 'realistic' exchange rate. In spite of this, the external sector is a source of monetary expansion which is working against the efforts made on the fiscal front to control the money supply"[80].

Looking for the appropriate tool to deal with both inflation and recession, for the third time in a period of two years, the government decided to modify the stabilisation policy based on monetary restriction. Efforts were now focused on changing the exchange rate policy of crawling peg for one of a 'dirty' float in which, the Central Bank would try to manage the market price by buying and selling foreign exchange. The intention was to: (a) increase the level of uncertainty in the foreign exchange market for those speculating with the interest rate differential between the foreign and local financial markets; and (b) reduce the surplus in the balance of trade by allowing an appreciation of the peso in real terms. In addition, to limit the monetary expansion generated by the inflow of foreign capital, the Central Bank set a compulsory deposit requirement in local currency equivalent to 20% of the external capital. Finally, the other factor thought to be at the root of the inflationary process was the indexation of the economy. It was established, therefore, that the policy of wage restriction would continue and public utility tariffs would not rise automatically following inflation, but in accordance with the financial needs of each State-owned enterprise which, in turn, was required to lower its operating costs.

[80] Boletín Semanal, Ministry of Economy, No. 234, 22/V/78, pg. 23

The new exchange rate policy proved very effective at discouraging the influx of foreign capital, which dropped from US$ 1,077 million in the first quarter of 1978 to US$ 460 million and US$ 35 million in the second and third quarters respectively (Graph III.7). As a result, the monetary creation caused by the capital account of the balance of payments declined from 57% to 38% and 9% in the first three quarters of the year. At the same time, the policy of delaying nominal wage and tariff increases contributed to a reduction in inflation: the rate of increase in consumer prices fell from 31.8% in the first quarter to 28.6% in the second and to 22.3% in the third quarter (Graph III.6). However, the attempt to reduce the surplus in the balance of trade via an appreciation of the peso in real terms backfired: instead of the hoped-for reduction, the surplus in the trade accounts rose from US$ 278 million in the first quarter of 1978 to US$ 754 million in the third quarter. This was the result of an increase in the terms of trade of Argentine exports and the reduction in imports due to the decline in the level of activity initiated the previous year (Graph III.8). The net effect of the trade and capital accounts was a large increase in the stock of foreign reserves and with it, a huge monetary expansion[81]. This increase in liquidity caused an excess supply in the money market which, in turn, generated an excess demand in the real sector (market for goods and services). As happened in the second half of 1977, the adjustment to this disequilibrium was mainly via prices rather than quantities. This explains why after the temporary dis-inflation, prices began to rise again, reaching a rate of 30.2% in the last quarter of this year; that is, an annual rate of more than 180% (Graph III.6).

The results with regard to the level of activity also fell short of expectations: total output declined by 4.1% in 1978, basically due to a sharp fall in manufacturing sector of 8%. This decline in production affected almost all branches of industry with the exceptions of the paper and non-metallic minerals which grew slightly. Among the most negatively affected activities were the production of durable goods for household consumers and machinery. It should be pointed out that the overall economic decline would have been

[81] At that time, the shallow capital market of Argentina prevented the Central Bank from issuing enough public bonds to sterilise this monetary expansion.

even more severe had it not been for the construction sector which grew by 7%. In turn, this is explained - to a large extent - by public construction which increased by 12% due to several energy and road projects and public works in preparation for the Football World Cup held in Argentina that year.

Although the government maintained its long-term objective of changing the model of economic development of industrialisation by import substitution, the short term macro-economic dynamic - high and persistent inflation coupled with a deep recession - became the major concern of policy-makers. When the pressure of different economic groups became unbearable, a new economic programme was proposed at the end of 1978.

### III.3.2 Second Phase 1979-81

The plan launched on 20th December 1978 was an attempt to gradually reduce the rate of inflation and to achieve a structural reform aimed at integrating the country into the world economy. For the first time ever, the strategy of opening-up of the economy to international capital markets was considered explicitly as a policy instrument. The intention was to "change radically from a closed economy characterised by extensive State interventionism to one characterised by openness, in which the private sector is the engine of growth and the State plays a subsidiary role"[82]. At that time, the economic authorities insisted that the inflationary process was mostly influenced by a feedback mechanism which linked individual expectations to some forms of *formal* and *informal* types of indexation. With this diagnosis, the strategy adopted by the government was to rely on foreign competition and on the management of some fundamental prices to help discipline local economic agents. Furthermore, the intention was to limit the size of the fiscal disequilibrium, as well as the proportion in which it was financed *via* printing money.

[82] Speech given by the Minister of Economy, Boletín Semanal, Ministry of Economy, no. 265, 25/XII/78

The stabilisation programme was organised around a pre-announced sliding schedule of monthly adjustments for the following variables: the nominal exchange rate, prices of public services, minimum wages and the rate of expansion of bank loans. As part of the exchange rate policy, therefore, the monetary authority was committed to buying and selling foreign exchange at the prevailing rate. Moreover, on the external front, the plan consisted of extensive financial and commercial reforms which included two policies: (a) the elimination of foreign exchange controls and an important reduction of barriers to foreign capital movements; and (b) a pre-announced schedule of tariff reduction for the next five years. The intention was to gradually reduce import tariffs from a non-weighted rate of 29% on average in December 1978 to 15% in December 1984. This proposal was based on the assumption that the margin of nominal protection not used in relation with the external competition had already disappeared. This schedule was arranged as follows:

$X_{it} = X_{io} - (X_{io} - X_{tT})\, t/T = X_{io}\,(1 - t/T) + X_{iT}\, t/T \qquad (T = 20)\ ;\ (t = 1, ...., 20)$

$X_{it}$ = import tariff on product (i) - ad valorem- in quarter (t)

$X_{io}$ = import tariff on product (i) - ad valorem- at the end of December 1978

$X_{tT}$ = import tariff - % value added - at the end of the reduction schedule

For all $X_{io} \geq 30\ \% \Rightarrow X_{tT} = 30\ \%$;

$X_{io} < 30\ \% \Rightarrow X_{tT} = X_{io}$

Import tariffs which in December 1978 were higher than 30% would decrease steadily quarter by quarter at a constant rate to the government's objective of 30% at the end of December 1981. Those import tariffs which were lower than 30% would remain equal. The rationale behind the stabilisation plan of pre-announcing a devaluation schedule at a declining rate is to be found in: (a) the direct effect on internal inflation arising from a lower rate of price changes in traded goods; and (b) the effect of lowering inflationary expectations by reducing the uncertainty about the course of the exchange rate. It was expected that price changes of non-traded products would converge rapidly with price changes in traded sectors for fear of being replaced by imported goods. The idea of the convergence of domestic prices with international ones received in the literature the appellation of the "law of one price". In the same vein, it was expected that the local

interest rate would converge with foreign levels adjusted by the rate of devaluation plus the cost of arbitrage and a minimum exchange risk premium. This implied that in the long run, the interest rate in the local financial market was to be determined with total independence of the credit policy of the Central Bank. This is referred to as the "law of one rate"[83]. Therefore, the central variable of this stabilisation plan was the evolution of the nominal exchange rate which was to be changed according to a pre-announced scheme known to all individuals, this was known as the ''tablita'' plan[84.]

It should be stressed that a policy of pegging and managing the nominal exchange rate left the Central Bank with *no* control over the money supply. This is so, because when the nominal exchange rate is fixed, the monetary base becomes an endogenous variable to the sources of money creation in the external sector. In this situation if, for instance, the authority attempts to reduce the interest rate by raising the amount of credits, it will generate a capital outflow which will cause a decline in the stock of foreign reserves. This loss of reserves, in turn, will generate a reduction in the money supply until a new equilibrium is ultimately achieved, at which point, the stock of money returns to its previous level. The final result of this is that foreign reserves are entirely replaced by domestic financial assets. This means that in this foreign exchange regime, the Central Bank controls *only* the distribution between local and foreign sources of money creation but *not* the level or *quantum* of the money supply. One important implication of this is that the rate of growth of domestic credit will *not* be affected by the level of the interest rate.

---

[83] The rationale behind the convergence of interest rates is given by the Fisher hypothesis, which maintains that for financial assets that are identical except in their currency denomination, the difference between their rates of return is equal to the expected change in the exchange rate parity between the countries (exchange rate premium). See, for instance, R. E. Cumby and M. Obstfeld, ''A Note on Exchange-Rate Expectations and Nominal Interest Rate Differentials: A Test of the Fisher Hypothesis''. Journal of Finance, June 1981, Vol. 36, pp. 697-703 and M. I. Blejer, "Interest-Rate Differentials and Exchange Risk: Recent Argentine Experience," IMF Staff Papers, June 1982, pp. 270-79.

[84] A formal model of the stabilisation programme followed over the period 1979-81 can be found in Roque Fernández, ''The Expectation Management Approach to Stabilisation in Argentina during 1976-82'', World Development, Vol. 13, No. 8, pp. 871-892.; C. A. Rodriguez, ''El Plan Argentino de Estabilización del 20 de Diciembre'', Documento de Trabajo, C.E.M.A., 1980, Nro. 4; R. B. Fernández y C. A. Rodriguez, Inflación y Estabilidad, 1982; and L. Sjaastad ''Failure of economic liberalism in the southern cone of Latinoamerica'', The World Economy, 1983, March, pp. 34-79

The trade reform was designed to operate not only as an anti-inflationary instrument by moderating price increases but also, to change the incentives for allocating resources to the productive sector, aimed at taking full advantage of the country's comparative advantages. It was understood, however, that this goal was entirely subordinated to the short-term anti-inflationary objective. In the words of the Minister of Economy Martínez de Hoz … ''if needed, the State would act to maintain market discipline in connection with price increases and for that reason, it was possible to anticipate some phases of the trade reform by accelerating the schedule of tariff reduction''[85].

As part of the re-definition of the role of the State in the economy, fiscal policy was designed to cut public expenditures and to intensify tax pressure as a means of closing the fiscal disequilibrium. The measures included the downsizing of the public sector and the decentralisation of some activities from the national administration (e.g. schools and hospitals) to the provincial governments. In connection with revenues, the taxation system was re-structured increasing the use of indirect taxes (Value Added Tax - VAT) and reducing tax exemptions. These measures were complemented with a strict control over the transfer of resources from the Treasury to State firms, and with the prohibition of direct financing from the Central Bank to the National Treasury.

The policy-makers believed that after some period of adjustment, price increases of tradable goods would be equal to the rate of devaluation plus the rate of international inflation. In addition, they expected that the nominal interest rate in the domestic banking system would converge with the external one, adjusted by a minimum risk premium and, therefore, independent of the monetary policy of the Central Bank.

As in the previous phase, the initial conditions in which the ''tablita'' programme was launched is summarised first.

[85] Speech given by the Minister of Economy, Boletín Semanal, Ministry of Economy, no. 265, 25/XII/78

Table III.4

Key Macro-economic Variables, 1978-81

| Economic Variable | 1978 | 1979 | | 1980 | | 1981 | |
|---|---|---|---|---|---|---|---|
| | | I | II | I | II | I | II |
| Rate of growth (% GDP) | -3.5 | 8.3 | 6.0 | -0.2 | 2.4 | 0.4 | -11.9 |
| Inflation rate - WPI (%) | 143.3 | 64.6 | 39.1 | 32.5 | 32.5 | 62.7 | 72.1 |
| Inflation rate - CPI (%) | 169.8 | 63.9 | 46.4 | 42.0 | 32.2 | 47 | 57 |
| Current account (in millions of US$) | 1,785 | 418 | -989 | -1,764 | -3,026 | -3,178 | -1,514 |
| Trade balance (in millions of US$) | 2,566 | 1,353 | -255 | -585 | -1935 | -531 | 244 |
| Capital account (in millions of US$) | 1,461 | 2,389 | 2,624 | 892 | 1,090 | 596 | 299 |
| Foreign reserves (in millions of US$) | 6,037 | 8,513 | 10,480 | 9,190 | 7,684 | 4,729 | 3,877 |
| Real exchange rate 1975=100 | 88.0 | 74.4 | 69.3 | 57.6 | 53.2 | 59.7 | 63.1 |
| Nominal peso deprec. (%) | 91.0 | 37.4 | 27.6 | 15.2 | 23.4 | 125.9 | 105.1 |
| M1/GDP (%) | 6.3 | 6.4 | 5.9 | 7.7 | 7.0 | 7.2 | 5.5 |
| Real wages 1975=100 | 63.5 | 67.5 | 74.0 | 76.8 | 81.6 | 84.0 | 85.4 |
| Fiscal deficit (% of GDP) | 10.1 | 8.7 | 9.5 | 12.1 | 13.8 | 14.5 | 16.4 |

Source: own construction based on data obtained from Memorias Anuales del Banco Central, The Central Bank of Argentina, several annual issues, 1976-78, and from Cavallo and Peña, (1984) Op. Cit.

By the end of 1978, the macro-economic situation of Argentina was characterised by a deep recession with high inflation (stagflation), a large surplus in the foreign accounts, a strong reserve position in the Central Bank and a relatively low indebtedness with the exterior. Internationally, favourable conditions existed in the financial and commercial markets: there was an excess of liquidity abroad, the country was receiving a large influx of foreign capital and the terms of trade for Argentine exports were historically high. Internally, the policy of price de-regulation plus the government's control over nominal wage increases caused a marked reduction in the level of real wages. Moreover, the surplus in the balance of trade is evidence that the peso was *not* overvalued at the end of 1978, despite the real appreciation of around 30% that it had undergone from early 1977 (Table III.4). On the fiscal side, the efforts made to reduce the deficit had proved insufficient, and it remained at around 10% of GDP, *not* very different from what it had been at the end of 1976.

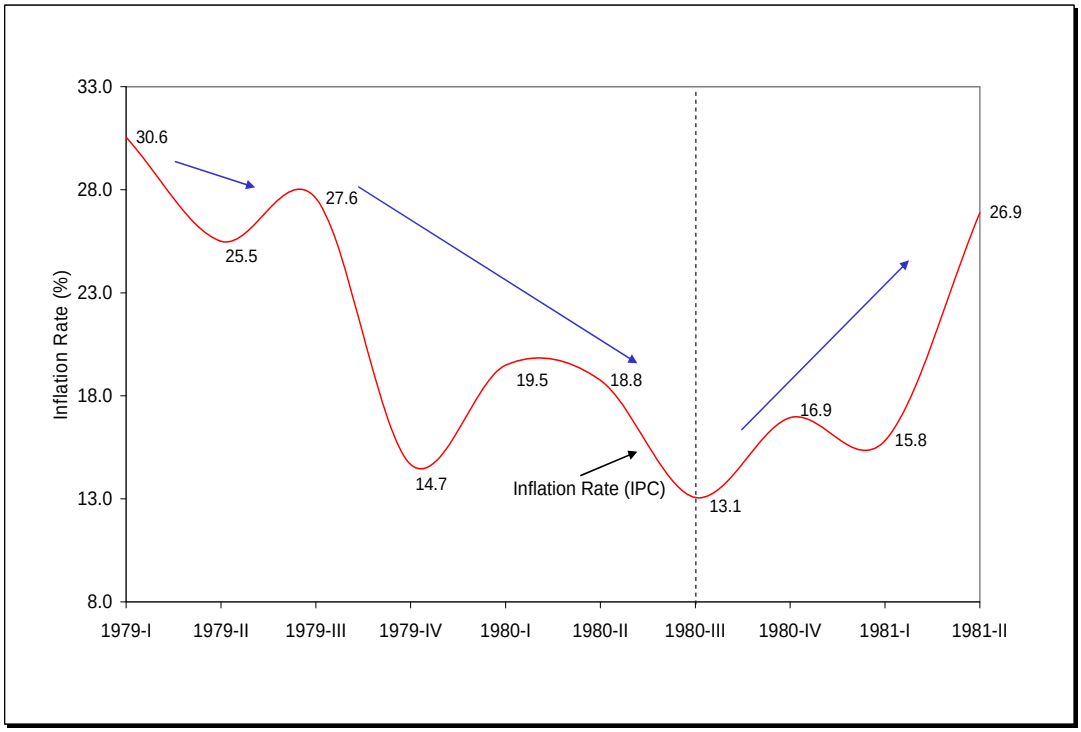
The analysis of the economic results begins by looking at the evolution of the two 'key prices' - inflation and interest rates - which the government expected to converge with international standards. As shown in the graph below, the objective of dis-inflation was

achieved only partially and temporarily over the years 1979-81.

Graph III.9

Quarterly Inflation Rates, 1979-81

(Consumer Price Index - CPI)




Source: own construction based on data taken from Memorias Anuales del Banco Central, The Central Bank of Argentina, several annual issues, 1976-81

Measured by the consumer and wholesale prices, the inflation rate fell from 30.2% and 26.9% in the fourth quarter of 1978 to 13.1% and 9% in the third quarter of 1980 respectively. Subsequently, inflation stayed at 15.8% and 12.9% in the first quarter of 1981 respectively. After the resignation of the Minister of Economy Martínez de Hoz in March 1981, there was an acceleration of inflation and consumer and wholesale prices increased by 27% and 44% per quarter during the second half of the year respectively. Over this period of temporary stabilisation and renewed inflation, three different phases can be identified (Graph III.9). In the first eight months, the inflation rate declined slightly but remained relatively very high (between 24% and 25% per quarter). This was due to inflationary expectations and an excess demand for non-traded goods - those

which were not directly influenced by the exchange rate policy and the tariff reduction[86]. Between January and August 1979, retail prices rose by 29% per quarter on average and wholesale prices by 31%. For the government, an increased foreign inflation was preventing a more rapid stabilisation of prices: it was estimated that half of inflation was explained by the rise in world prices[87].

As can be seen in Graph III.9, in the last quarter of 1979, the anti-inflationary policy had more effect and price increases experienced a marked drop: consumer and wholesale prices increased by 14.7% and 11.2% respectively. The declining rate of devaluation of the peso began to reduce inflationary expectations. Another important factor was the price of beef which declined as a result of lower prices in the international market. Subsequently, there was a temporary acceleration of inflation in the first half of 1980 due to an increase in the level of uncertainty as a consequence of the onset of the banking crisis in March[88]. By the middle of the year, nevertheless, the country's financial situation had improved somewhat and the anti-inflationary policy had begun to bear some fruit: consumer prices rose by only 13.1% and wholesale prices by 9% in the third quarter, in a period in which inflation measured by retail prices reached a minimum in August. This dis-inflation, however, was short-lived and the inflation rate began to rise in last quarter of 1980 (Graph III.9). By that time, there was growing uncertainty with regard to the future of the 'tablita' plan as the date for the pre-established change of government approached. These fears proved to be well-founded, in June 1981, the new authorities, realising the impossibility of sustaining the exchange rate scheme, devalued the peso by 30%, marking the end of the 'tablita' plan. As a result, inflation soared and by the end of 1981 it had reached a rate similar to that of 1978 (Table III.4).

As well as the effect of foreign prices, price indexation and individuals' expectations of

[86] It was influenced by the price of meat which rose at a monthly rate of 13 % in the first eight months.
[87] Memorias Anuales del Banco Central, The Central Bank of Argentina 1980, p. 71.
[88] The origin and consequences of the banking crisis of 1980 are analysed later in Chapters IV, V and VI.

devaluation, another crucial factor to be blamed for the high inflation is the large fiscal imbalance over these years. Table III.5 presents the de-composition of the total public deficit, the proportion of it financed via money printing and the importance of the fiscal disequilibrium in comparison with the total money supply.

Table III.5

Fiscal Deficit and Its Monetary Financing, 1978-81

(Percentage of GDP)

| Composition of the Fiscal Deficit | 1978 | 1979 | 1980 | 1981 |
|---|---|---|---|---|
| Total fiscal deficit | 10.1 | 9 | 11.9 | 16.4 |
| Total fiscal deficit net of debt services | 1.8 | 2.4 | 7.2 | 8.2 |
| Indexation of public debt | 1.4 | 1.3 | 0.6 | 1.1 |
| Monetary regulatory account (CRM) | 2.8 | 0.9 | -0.7 | 0.7 |
| Fiscal deficit financed by printing money (%) | 60.1 | 52.3 | 63.4 | 76.1 |
| Fiscal deficit / M1 (%) | 71.5 | 58.7 | 76.4 | 130.4 |

Source: own construction based on data obtained from Cavallo and Peña (1984*),* Op. Cit.

As a result of the fiscal measures applied, the accounts of the national administration improved by 2.1% of GDP in 1979 (Table III.5). At the same time, the reduction carried out by the Central Bank of the reserve requirements for banks helped to reduce the deficit caused by the monetary regulatory account by 1.9% of GDP. Furthermore, the reduction in the rate of inflation meant a lower cost for debt indexation. However, the policy of limiting the financing of State-owned enterprises from the National Treasury did *not* prevent them from obtaining credits in the local and foreign capital markets. With this possibility, and given the high liquidity reigning internally and abroad, the public firms increased their spending - including interest costs paid on debts. Although the authorities claimed that these loans did *not* have a State guarantee, the banks believed that an implicit insurance existed and, therefore, decided to lend to these enterprises, charging very high interest rates in real terms. In just one year, from December 1978 to December 1979, the amount of loans granted by the local banks to the public sector increased by US$ 1,921 million - a growth of 26% in real terms. On this point, the then President of the Central Bank, Adolfo Díz affirmed: “no matter what we said, there was an implicit State guarantee regarding the debts of State-owned

firms[89]. This helps to explain the over expansion of bank credits granted to the public sector and the negative allocation efficiency of these funds, which subsequently generated serious fiscal and financial problems.

The lack of discipline of these enterprises helps to explain why, despite the efforts of the government in some areas, the consolidated fiscal deficit showed only a marginal reduction of 1.1% of GDP - from 10.1% in 1978 to 9% in 1979 (Table III.5). The fiscal deficit increased further thereafter. Higher expenditures and lower revenues because of a fall in the level of activity led a consolidated disequilibrium of 11.3% of GDP in 1980 and 16.4% in 1981. What is more, in contrast with the government's aims, the proportion of the deficit financed by printing money grew from 52% in 1979 to 63% in 1980 and 76% in 1981. This monetary issue, in turn, represented a high proportion of the total money supply in the economy (58.7% in 1979, 76.4% in 1980 and 130.4% in 1981 - Table III.5). Thus, the expansionist fiscal and monetary policies of these years helped to sustain a high level of aggregate demand, which worked against the government's goal of price stabilisation.

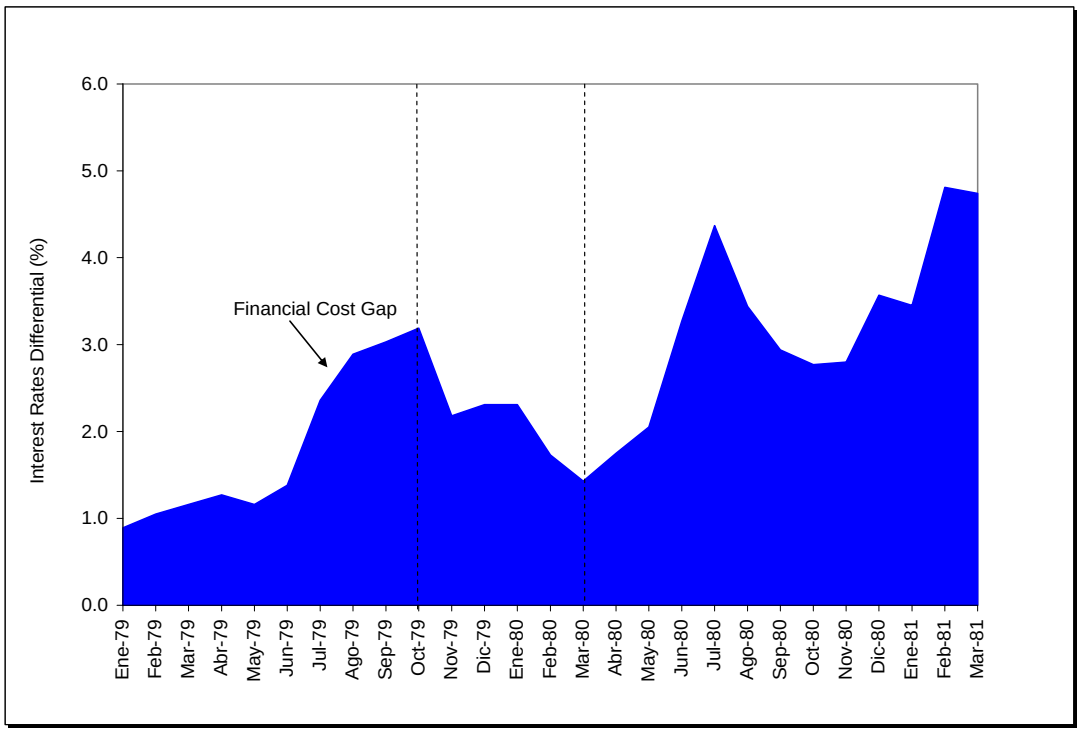
The other economic variable which the authorities thought could be brought into line with international levels was the interest rate, adjusted by the rate of devaluation and the exchange rate risk. This was attempted as a means of integrating the country financially into world markets by opening up the economy to capital movements and by pre-announcing the time and the rate of nominal devaluation of the domestic currency. Graph III.10 presents the evolution of the financial spread between the interest rates in the international capital market and in the local financial system after the corresponding adjustment by the rate of nominal devaluation.

[89] This was mentioned by the President of the Central Bank, Adolfo Díz to David Erro in an interview. See D. G. Erro, Op. Cit, p. 116

Graph III.10

Financial Spread Between the Domestic and Foreign Interest Rates, 1979-81

(Percentage points)




Source: based on data obtained from R. Frenkel, ''La apertura financiera externa: el caso argentino'', in R. French Davis (edit.), Las relaciones financieras externas, (1983), pp. 146-196

As can be seen in the graph above, the second predicted convergence ***not*** only failed to occur but in fact, except for two short-periods, the local and the foreign interest rates diverged. That is to say, over these years, most of the time Argentina faced a growing exchange rate risk. At the beginning, the cost difference of borrowing internally and abroad - adjusted by the rate of nominal devaluation - increased from 0.9% to 3.2% per month in the period between January and October 1979 (Graph III.10). This was mainly due to the reduction in the rate of devaluation, which explains 78% of the increase in the financial cost, whereas the remaining 22% is explained by the increase in the domestic rate of interest. Thereafter, the reduction in inflation caused a marked decline in the financial spread which went from a monthly rate of 3.2% in the third quarter of 1979 to 1.4% in the first quarter of 1980 (Graph III.10). This was the result of a positive combination of the following factors: a reduction in the interest rate of 2.5%, an

increase in the international one of 0.2% and a reduction in the rate of nominal devaluation of 0.9%, something already pre-defined in the exchange rate programme of nominal devaluation ('tablita').

However, a turning point occurred in March 1980 and the exchange rate risk began to rise. This was mainly the consequence of an increase in the level of uncertainty caused by the liquidation of the largest private bank - *Banco de Intercambio Regional* which gave rise to a deposit run[90]. In the following two months, the exchange rate risk increased further to 4.4% in July 1980, representing an annual rate of 68%. Thereafter, as can be seen in Graph III.10, there was a temporary decline over the third quarter and, from then on, the exchange rate risk experienced a sharp increase from 2.8% per month in October 1980 to 4.7% in March 1981. This was the result of internal factors, as in this period, the interest rate in the foreign market (*prime rate*) remained stable at around 1.15% per month[91].

The failure to achieve the expected convergence of the inflation and interest rates with international standards, together with the existence of a large fiscal deficit, had important macro-economic consequences. To begin with, there was a continuous appreciation of the domestic currency in real terms. Twenty months after the beginning of the stabilisation plan, the peso had been devalued in nominal terms by 94.3%, when external inflation was 34.1% (Table III.4). In accordance with the criteria of price convergence ('law of one price'), over this period, domestic prices should have risen by 160.5%. The actual rise in wholesale and consumer prices was, however, 230.5% and 284.5% respectively. This means that by August 1980, the peso had accumulated an overvaluation of about 40% (Table III.4). This forced the government to review the exchange rate guidelines. On 16th September 1980, for the first time, the pre-announced devaluation rule was changed and the new rate of nominal devaluation of

[90] This point is analysed later in Chapters IV and V.
[91] Own calculation based on the financial gap between borrowing internally and abroad - adjusted by the rate of nominal devaluation (Graph III.10)

the peso for the last quarter would be at 1% per month instead of 0.2% as had been previously established. At that time, the government gave *no* indication of what the pace of devaluation for the next quarter would be. Thereafter, on 10th December, it was announced that the devaluation per month for the first quarter of 1981 would be 2%, changing again the devaluation scheme of 1% applied in the last three months of the previous year. Finally, without any anticipation, an out-of-schedule devaluation of 10% was carried out in February 1981. Moreover, it was announced that the nominal exchange rate would increase at 3% per month until August 1981 which, in fact, marked the end of the policy of sliding devaluation established in December 1978.

In spite of these nominal devaluations; by March 1981, the peso had appreciated by 27% against its level at the beginning of the stabilisation programme ('tablita'). It should be stressed that this overvaluation is more important if it is considered that, in December 1978, the peso was already overvalued by 28% in relation with its level in January 1977 (Table III.3). This means that the real exchange rate was around 55% lower in dollar terms at the end of 1981 than in early 1977.

Table III.6

Commercial and Capital Accounts of the Balance of Payments, 1978-81

(Millions of dollars)

| Period | Balance of Trade | Services | | Current Account | Non-Compens. Capital | Changes in Reserves |
|---|---|---|---|---|---|---|
| | | Real | Financial | | | |
| 1978 | 2,566 | -99 | -632 | 1,834 | 1,334 | 6,037 |
| 1979 | 1,098 | -764 | -885 | -550 | 4,915 | 10,480 |
| I | 351 | -285 | -130 | -64 | 1,029 | 7,034 |
| II | 1,003 | -154 | -383 | 466 | 1,033 | 8,513 |
| III | 248 | -159 | -156 | -67 | 1,335 | 9,694 |
| IV | -503 | -166 | -217 | -886 | 1,515 | 10,480 |
| 1980 | -2,519 | -740 | -1,509 | -4,768 | 2,254 | 7,684 |
| I | -223 | -419 | -125 | -767 | 1,126 | 10,667 |
| II | -361 | -150 | -477 | -989 | -793 | 9,190 |
| III | -747 | -11 | -387 | -1,145 | 1,455 | 9,492 |
| IV | -1,188 | -160 | -519 | -1,867 | 465 | 7,684 |
| 1981 | -134 | -616 | -3,306 | -4,056 | -1,236 | 3,877 |
| I | -624 | -682 | -743 | -2,049 | -952 | 4,699 |
| II | 246 | -33 | -912 | -699 | -845 | 4,729 |
| III | 607 | 71 | -796 | -117 | -112 | 4,646 |
| IV | -363 | 27 | -855 | -1,192 | -1236 | 3,877 |

Source: own construction based on data obtained from Memorias Anuales del Banco Central, The Central Bank of Argentina, several annual issues, 1976-81

A direct consequence of the growing overvaluation of the domestic currency combined with the tariff reduction was the deterioration of the country's external accounts[92]. After more than three years of surplus, a commercial deficit occurred in the last quarter of 1979 and, in 1980, the trade imbalance reached US$ 2,500 million (Table III.6). In a period in which exports remained relatively stable, the deterioration of the balance of trade was entirely the result of the increase in all types of imports: capital and intermediate goods increased by 118% and 170% and consumer goods by 775%. These differential rates of growth led to a marked change in the composition by types of imports: imported consumer goods went from 5.5% of total imports to 17.3%, whereas capital and intermediate goods went from 28.6% and 65.9% to 21.8% and 60.9% respectively. Moreover, high spending on tourism abroad and on financial services explains the increase in the deficit of the service account from US$ 632 million

[92] Wogart and Marquez found that redundant tariff protection had already been eliminated by January 1979. J. P. Wogart and S. Marquez, ''Trade liberalisation, tariff redundancy and inflation. A methodological exploration applied to Argentina'', Review of World Economics, 1984, pp. 18-39

at the end of 1978 to US$ 1,509 million at the end of 1980. As a result, the current account went from a *surplus* of US$ 1,834 million in 1978 to a *deficit* of US$ 4,768 million in 1980; a deterioration which occurred despite the recovery of 20% in the terms of trade of Argentine exports over the period 1979-80 (Table III.6)[93].

As shown in Table III.6, for the country as a whole, the continuous overvaluation of the peso led to an excess of domestic absorption (consumption plus investment) over the level of aggregate production which, in turn, implied a growing demand for external financing. Part of this capital was supplied by private investors, who were attracted by the high interest rate differential existing between the internal and external markets. Given this financial spread, the policy of pre-announcing the nominal devaluation and the reduction in the minimum term for loans to one year became a strong incentive for both domestic and foreign investors to: (a) borrow abroad to invest internally in physical assets; and (b) speculate in the financial system via arbitrage of interest rates. Another supplier of foreign funds was the public sector which began to borrow abroad so as to finance part of its deficit. As a result, between the first and last quarter of 1979, the country received foreign funds of more than US$ 4,900 million (8.7% of GDP - Table III.6). At that time, the deficit in the current account was relatively small and consequently, most of these funds went to increase the stock of foreign reserves in the Central Bank, which reached US$ 10,480 million in December 1979 (18.6% of GDP - Tables III.4 and III.6).

However, by the end of 1979, the interest rate differential between the domestic and foreign markets had started to converge causing a notable reduction in the amount of private capital inflows: between January and March 1980, these funds were around two-thirds of the previous quarter (US$ 1,026 million) (Graph III.10 and Table III.6). In addition, as mentioned earlier, the country risk rose due to the banking crisis and, for

[93] For the authorities, nevertheless, this decline in the real exchange rate was seen as a “positive” result, since they believed that the large trade surplus with the exterior of the period 1977-78 and thus, its internal monetary effects were due to a highly undervalued currency.

the first time since the beginning of the stabilisation plan, a capital outflow of nearly US$ 800 million took place in the second quarter of 1980 (Table III.6). In an attempt to halt the capital flight and loss of foreign reserves, new measures were applied in mid-1980, which included: (a) an extension of the pre-announced exchange rate guideline; (b) the elimination of the minimum term for borrowing abroad; (c) an increase in public external borrowing; (d) an extra reduction of import duties and a new schedule aimed at reaching a uniform import tariff of 20% in the year 1984; and (e) the elimination of some contributions paid by employers in order to help local producers compete with imported goods.

These measures proved effective at reversing the private capital movements and an inflow of external funds of US$ 1,920 million took place in the third and fourth quarters of 1980 (Table III.6)[94]. At the same time, the public sector demanded foreign borrowing of around US$ 1,500 million. This helped to ease the monetary restriction and resulted in a brief economic recovery in the third quarter of the year. However, by that time, the disequilibrium in the external accounts had reached US$ 2,900 million and the peso had accumulated a real appreciation of 35% in relation to the December 1978 level (Tables III.4 and III.6). These factors heightened expectations of a nominal devaluation threatening the sustainability of the exchange rate plan. This is shown in Graph III.10, which depicts an increase in the exchange rate risk - the interest rate differential between the local and foreign markets - in the second semester of 1980. This time, however, and in contrast with what had gone before, the increase in the interest rate did *not* compensate for the higher risk faced by financial investors and consequently, a capital flight of US$ 3,800 million occurred between October 1980 and March 1981 (Table III.6).

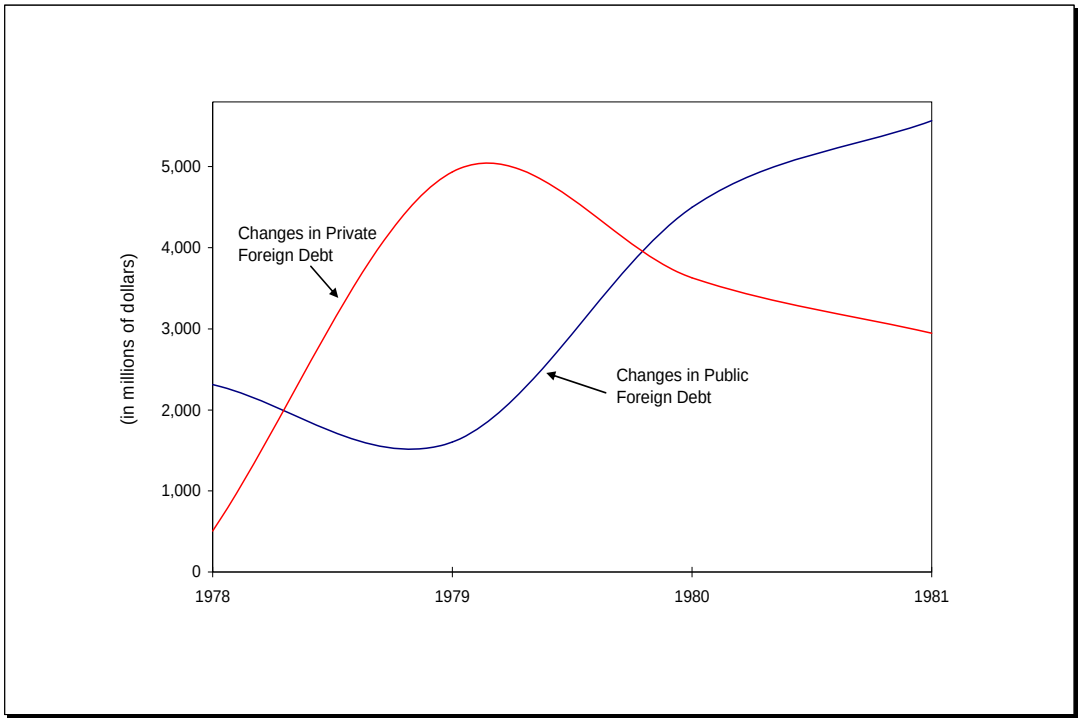
Over these years, the government followed a countercyclical policy in relation to private capital movements.

[94] The monetary and financial measures taken over these years are analysed in Chapter IV.

Graph III.11

Changes in Private and Public Foreign Debt, 1978-81

(Millions of dollars)




Source: own construction based on data obtained from Memorias Anuales del Banco Central, The Central Bank of Argentina, several annual issues, 1976-81

Graph III.11 shows that until the last quarter of 1979, in the period in which there was a large influx of private funds, the public sector was relatively cautious about borrowing abroad. Subsequently, when the supply of private funds began to dry up, the public sector started borrowing heavily abroad in an attempt to maintain the exchange rate scheme: in 1980, the foreign debt of the public sector increased by 45%; that is, nearly US$ 5,000 million (see Table III.7). However, given that the credibility of the economic programme was deteriorating *pari-passu* with the overvaluation of the peso and the mounting deficit in the external sector, the increased public indebtedness did *not* contribute to strengthening the reserve position of the monetary authority, but to fuelling the process of capital flight. In effect, despite the supply to the Central Bank of around US$ 5,500 million by the public sector over the period of one year (from March 1980 to March 1981), the stock of foreign reserves dropped by US$ 6,790 million, from

US$ 10,667 to US$ 3,877 million (Table III.6).

As shown in the table below, the use of external borrowing on the part of the private and public sectors resulted in a huge increase in the country's foreign debt.

Table III.7

Stock of Private and Public External Debt, 1978-81

(Millions of dollars)

| Period | Public Debt | Private Debt | Gross Debt | Net Debt | Foreign Reserves | |
|---|---|---|---|---|---|---|
| | | | | | Stock | Variation |
| 1978 | 8,357 | 4,139 | 12,496 | 6,459 | 6,037 | 1,998 |
| 1979 | 9,960 | 9,074 | 19,034 | 8,554 | 10,480 | 4,443 |
| 1980 | 14,459 | 12,703 | 27,162 | 19,478 | 7,684 | -2,796 |
| 1981 | 20,024 | 15,647 | 35,671 | 31,794 | 3,877 | -3,807 |

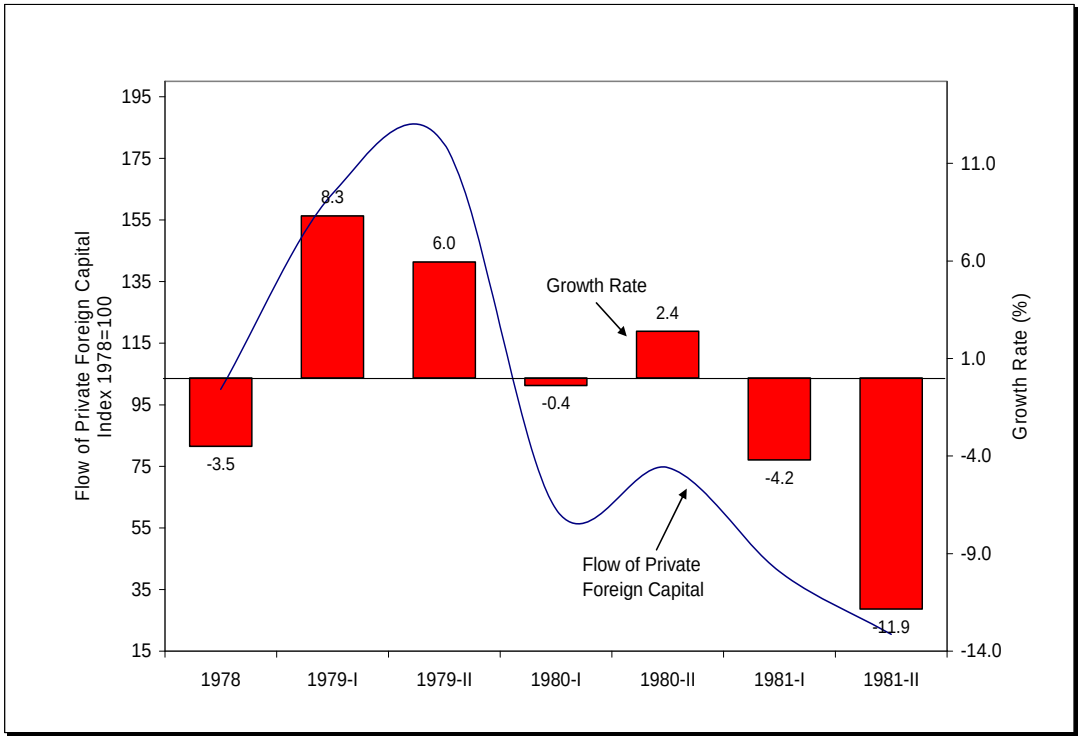
Source: own construction based on data obtained from Memorias Anuales del Banco Central, The Central Bank of Argentina, several annual issues, 1976-81

In just three years, (1979-81), the gross external debt tripled, from US$ 12,496 million to US$ 35,671 million. More importantly, the loss of foreign reserves after 1979 due to capital flight and the deficit accumulated in the commercial accounts caused a five-fold rise in the *net* foreign debt (gross debt minus the foreign reserves in the Central Bank) from US$ 6,459 million in December 1978 to US$ 31,794 million in December 1981 (Table III.7). Internally, these funds contributed to generating a large monetary expansion and a notable increase in bank lending capacity: in the first six months, M3 (money in circulation plus current savings and time deposits) went from 28.7% of GDP at the end of 1978 to 36.6% in mid-1979, and the stock of bank loans grew by 114.8%[95]. Part of these credits went to finance the public sector, which helped to reinforce the government's belief that the financing of the fiscal deficit would not be a problem. With regard to the level of activity, the rise in liquidity brought about strong economic reactivation at the beginning of the plan. Graph III.12 depicts the evolution of the rate of economic growth, private capital movements and the stock of bank credits.

[95] Own estimation based on data obtained from the Central Bank, Boletín Estadístico, several monthly issues, 1978-80

Graph III.12

Economic Growth and Private Capital Movements, 1978-81




Source: own construction based on data obtained from Memorias Anuales del Banco Central, The Central Bank of Argentina, several annual issues, 1976-81

In the first half of 1979, total output increased by 7.8%. In this period, there was across the board growth: 2.7% in agriculture, 8.7% in industry, 5.1% in the service sector and 6.2% in construction. The banking sector experienced the largest growth (16.6%) due to an extraordinary rise in deposits and credits, in a scenario of free market allocation of funds[96].

However, the initial positive impulse began to run out of steam at the end of the first year together with the reduction in the influx of foreign capital and with the lost of

[96] These growth figures are all the more striking as the economy was emerging from a deep recession in 1978, when total output had declined by 4.1% and manufacturing by 8%. All data on the evolution of the main economic sectors presented in this section were obtained from Memorias Anuales del Banco Central, The Central Bank of Argentina, several annual issues, 1976-81 and Estudios, Estadísticas de la evolución económica de Argentina, 1913-84, Op. Cit., 1986

competitiveness of the local producers as a result of the continuous appreciation of the peso in real terms and the high real interest rates in the financial system (Table III. 4 and Graph III.12). The rate of growth fell to 6% in the second half of 1979 and to -0.2% in the first half of 1980. In this period, the rate of growth in agriculture and industry dropped to -5.3% and -3.9%, and in services and construction to 0.3% and 0.7% respectively. However, the banking sector experienced a different reality until March 1980: despite the widespread recession in the real sector, financial business continued growing rapidly (19.2% on annual basis).

Taking the year 1980 as a whole, total output increased by 1.4%, mainly as a result of the good performance of the service and construction sectors, in particular public works (Graph III.12). This result, however, contrasts with the evolution of the production of agriculture and industry, which fell drastically (5.9% and 3.8% respectively). The agricultural sector suffered the effect of adverse weather conditions and the real appreciation of the peso. Industry declined principally in those activities most affected by foreign competition such as textiles, clothing, paper and paper products, machinery and equipment, and in activities linked to exports, such as meat packing. In the case of the textile sector, for instance, the level of production dropped by 12%. The same trend is seen in the case of the sub-sector of machinery where production declined due to the general recession and also to the high interest rates in real terms in the local financial system. The same phenomenon is noted in the sub-sectors of iron and steel which fell 16%[97]. This extended picture of economic decline had only one exception, the motor vehicle industry where production rose by 41% in 1979 and by 12% in 1980. This was due to the special protection granted to the automobile industry, aimed at encouraging the production of medium-sized and large cars.

By the end of 1980, agricultural and industrial production had declined to the same levels as those of the years 1978 and 1973 respectively. In contrast to the other

[97] In addition, the steel industry was affected by a surplus in the world market. Data obtained from the Memorias Anuales del Banco Central, The Central Bank of Argentina, Op. Cit., 1980

sectors of the economy, the financial sector continued to experience rapid growth, 12.3% in 1980, a measure of this is the steady increase in the stock of bank loans of 16%. However, the foundations of this growth were shaky as many bank debtors were demanding financing simply to keep their heads above water in a scenario of widespread recession. This suggests that along with the declining level of economic activity a general problem of solvency was developing in the financial system[98]. Subsequently, in 1981, this problem deepened further as the GDP continued to fall, by 4.2% and 11.9% in the first and second halves respectively (Graph III.12).

In short, at the end of 1981, after three years of the stabilisation plan most of the macro-economic variables had experienced a marked deterioration branding the stabilisation *cum* economic liberalisation experiment an abject failure. The recession deepened, the peso accumulated a large overvaluation, the commercial and capital accounts of the balance of payments went from highly positive to highly negative, the stock of foreign reserves in the Central Bank dropped dramatically, the fiscal imbalance increased further, a large proportion of the productive sector faced problems of profitability which, in turn, generated problems of solvency in the financial system and the country's external debt increased five-fold. However, all this suffering was to no avail, since the main goal of the economic plan was far from being achieved: the annual inflation rate declined only marginally, from 170% in 1978 to 130% in 1981 (see above Graph III.9 and Table III.4).

[98] This point is analysed in depth in Chapters IV and VI.

## III.4 POLICY REFORMS AND STRUCTURAL TRANSFORMATION, 1976-81

This section presents an assessment of the structural transformation of the Argentine economy, with the aim of identifying the fundamental changes in the real sector, which resulted from the policy-reforms applied by the military government in the period 1976-81. As explained in Chapter II, a consistent macro-economic analysis should take into consideration both the interaction between the real and financial sides of the economy and the integration of stock and flow variables[99]. This methodology is used to examine the evolution, composition, allocation and re-allocation of resources, distinguishing the economic dynamic in terms of the types of goods/services and supply and demand sectors, and those which were saving and investing at different points in time. To this end, the situation of 1970-74 is taken as the starting point, and will be used as a benchmark to contrast the economic evolution of the years under study. In addition, as in the previous section, the period 1976-81 has been divided into two sub-periods in order to identify structural changes before and after December 1978. Finally, the nature of the economic disadjustments generated by the new model of development (1976-81) will be compared with those of the ISI model applied between 1945 and 1975.

To begin with, the evolution of the gross domestic product of Argentina is broken down into the main components of aggregate demand and supply, with the aim of identifying how they contributed to the expansion or decline in the level of activity, how their output-share changed over these years and what the main driving forces behind these alterations were.

[99] The building blocks of this analytical framework and its relevance for undertaking a consistent macro-economic study are presented in Chapter II, Sections 3, 4 and 5.

Table III.8

Output Growth and Supply-Demand Dis-aggregation, 1970-81

(Percentage of GDP)

| | Total Demand | Consumption | | | Investment | | | Exports |
|---|---|---|---|---|---|---|---|---|
| | | Total | Private | Public | Total | Private | Public | |
| Total growth | | | | | | | | |
| 1976-81 | 9.3 | 15.3 | 14.2 | 26.4 | -9.5 | 4.0 | -22.0 | 37.1 |
| 1976-78 | 1.1 | 0.2 | -0.8 | 10.0 | 0.9 | -8.5 | 9.6 | 37.1 |
| 1978-81 | 4.0 | 15.1 | 15.1 | 14.9 | -10.3 | 13.6 | -28.9 | 0.0 |
| Average growth | | | | | | | | |
| 1976-81 | 1.7 | 1.2 | 0.9 | 5.0 | 0.4 | 4.1 | -1.7 | 11.0 |
| 1970-74 | 3.7 | 4.7 | 4.9 | 3.3 | 3.2 | 1.5 | 7.3 | -2.4 |
| Contribut. to growth | | | | | | | | |
| 1976-81 | 114.6 | 84.6 | 70.2 | 14.5 | -15.5 | -7.4 | -8.1 | 30.9 |
| 1976-78 | 101.2 | 3.0 | -10.0 | 13.0 | 4.6 | 2.4 | 2.2 | 92.3 |
| 1978-81 | 112.7 | 123.7 | 111.4 | 12.4 | -23.8 | -11.1 | -12.6 | 0.0 |
| 1970-74 | 100.0 | 89.3 | 84.3 | 5.0 | 15.7 | 6.5 | 9.2 | -5.0 |
| Output-share | | | | | | | | |
| 1981-80 | 115.3 | 81.6 | 73.3 | 8.3 | 21.8 | 12.6 | 9.1 | 11.9 |
| 1970-74 | 108.6 | 78.1 | 71.6 | 6.5 | 22.1 | 13.2 | 8.9 | 8.4 |

| | Total Supply | Imports | GDP | Agric.,Cattle and Fishing | Mininng | Industry | Construc. | Services |
|---|---|---|---|---|---|---|---|---|
| Total growth | | | | | | | | |
| 1976-81 | 9.3 | 138.1 | 3.6 | 20.2 | 32.7 | -17.3 | -22.8 | 2.8 |
| 1976-78 | 1.1 | 16.6 | 2.8 | 7.0 | 18.8 | 5.3 | 21.5 | 9.7 |
| 1978-81 | 4.0 | 104.2 | 0.8 | 12.4 | 11.7 | -21.5 | -36.4 | -6.3 |
| Average growth | | | | | | | | |
| 1976-81 | 1.7 | 13.7 | 0.6 | 3.2 | 4.9 | -2.8 | -2.9 | 0.6 |
| 1970-74 | 3.7 | 0.4 | 4.0 | 4.0 | 9.6 | 8.2 | -0.5 | 1.1 |
| Contribut. to growth | | | | | | | | |
| 1976-81 | 114.6 | 14.6 | 100.0 | 128.5 | 47.7 | -273.1 | -58.6 | 55.5 |
| 1976-78 | 101.2 | 1.2 | 100.0 | 11.2 | 6.4 | 21.8 | 13.8 | 46.8 |
| 1978-81 | 112.7 | 12.7 | 100.0 | 17.5 | 4.1 | -72.9 | -20.9 | -27.8 |
| 1970-74 | 100.0 | 0.01 | 100.0 | 12.5 | 6.3 | 72.1 | -0.8 | 10.0 |
| Output-share | | | | | | | | |
| 1981-80 | 115.3 | 15.3 | 100.0 | 14.1 | 3.5 | 32.4 | 5.6 | 44.4 |
| 1970-74 | 108.6 | 8.6 | 100.0 | 13.3 | 2.4 | 33.8 | 5.0 | 45.6 |

Source: own construction based on data obtained from Memorias Anuales del Banco Central, The Central Bank of Argentina, several annually issues, 1976-81, and Estudios, Estadísticas de la evolución económica de Argentina, 1913-1984, Op. Cit., 1986

Between 1976 and 1981, the gross domestic product of Argentina grew by 3.6%, which means an average annual increase of 0.6% In both absolute and relative terms, this is a very low rate in comparison with the growth during the benchmark period (1970-74) of 20.1%, that is 4% per year on average (Table III.8). The most dynamic factors of aggregate demand were private and public domestic consumption and the foreign trade accounts (imports and exports). While the former explains more than 40% of the

total output growth, the latter accounts for more than 60% and consequently, offsets the negative contribution of total investments of 7.5% and, in particular, of public investments[100].

As can be observed in the figures above, this evolution is *not* homogeneous across the years. During the first sub-period (1976-78), the economy grew by 2.8% of GDP; which represents almost 80% of the total growth of the six years (Table III.8). Additionally, more than 90% of this rise is explained by the external sector, in particular, by the evolution of exports. All this was - to a great extent - the result of the policy of price redressing applied by the authorities during the first year, in particular, the high value in real terms set for the foreign exchange rate. However, the story changed radically in the second sub-period (1979-81). Total growth declined to 0.8% (0.25% per year), and consumption (private and public), in particular, of imported goods experienced a marked increase, in a period in which exports stagnated. More importantly, the magnitude of these changes was so great that they ended up re-shaping the country's demand structure: the proportion of consumption to total output increased from 78.1% in 1970-74 to 81.6% in 1980-81, and that of investment fell from 22.1% to 21.8%. As a result, total domestic absorption (consumption plus investment) increased from 100.2% of GDP in 1970-74 to 103.4% in 1980-81. This, in turn, accounts for the higher deficit in foreign trade, which went from 0.2% of GDP in 1970-74 to 3.4% in 1981-80 (Table III.8).

As with demand, on the supply side, there was also an uneven evolution of the different productive sectors in the period 1976-81: the primary activities (agriculture and mining) experienced an important rise, whereas industry and construction declined sharply (Table III.8). It should be stressed that this pattern is entirely due to the stabilisation *cum* liberalisation reforms applied in the years 1979-81. Indeed, in the first sub-period (1976-78), all sectors grew but in the second (1979-81), industry, construction and

[100] Own calculation based on data of Table III.8

services dropped by 22.1% and 36.4% and 6.3% respectively (Table III.8). The lower production of these sectors helps to explain - to a large extent - the reduction of the rate of economic growth from 2.8% to 0.8% of GDP between the first and the second sub-periods. Furthermore, given the steep fall in industrial production, and knowing that its weight in the generation of total output is around one-third, the poor performance of this sector ***not*** only had a negative effect on the level of aggregate output, but also on the sectoral composition of the production structure: a process of de-industrialisation took place during these years[101]. The output-share of the manufacturing sector as a whole declined from 33.8% in the period 1970-74 to 31.2% in 1981-80 (Table III.8).

The extent of this process of disarticulation of the domestic industry can be appreciated by looking at the intra-industry figures.

Table III.9

Composition and Evolution of the Industrial Structure, 1970-81

(Percentage points)

| | Rate of Growth (%) | | | Estructure (% of GDP) | | | |
|---|---|---|---|---|---|---|---|
| Industrial Sector | 1976/ 1981 | 1976/ 1978 | 1979/ 1981 | 1976-81 | 1976-78 | 1979-81 | 1970-74 |
| Total Industries | -17.2 | 6.3 | -22.1 | 100.0 | 100.0 | 100.0 | 100.0 |
| Food, Beverages & Tobacco | 4.9 | 27.0 | -17.4 | 21.3 | 21.0 | 23.7 | 18.3 |
| Textiles, Shoes & Clothing | -26.6 | -3.2 | -24.2 | 11.2 | 11.7 | 12.2 | 12.5 |
| Wood & Wood Products | -17.2 | 0.7 | -17.8 | 1.8 | 1.7 | 1.9 | 2.0 |
| Paper, Printing & Publishing, | -18.7 | 10.4 | -26.4 | 5.1 | 5.1 | 4.9 | 5.3 |
| Chemicals, Rubber Petroleum, Other Derivaties & Plastics | -41.6 | -26.6 | -20.4 | 14.1 | 13.9 | 12.9 | 20.0 |
| Non-Metallic Minerals | -15.5 | 17.0 | -27.8 | 5.3 | 5.3 | 4.7 | 5.1 |
| Basic Metals | -51.2 | -35.0 | -24.9 | 5.4 | 5.1 | 4.2 | 8.8 |
| Metal Products, Machinery & Equipment, Transport Vehicles | 5.8 | 34.4 | -21.3 | 29.1 | 29.3 | 28.9 | 22.3 |
| Other Industries | -17.2 | 20.3 | -31.1 | 6.8 | 7.0 | 6.6 | 5.8 |
| Total Industries | -17.2 | 6.3 | -22.1 | 100.0 | 100.0 | 100.0 | 100.0 |
| Finished Consumer Goods | -8.4 | 13.9 | -19.6 | 37.7 | 33.1 | 39.5 | 32.7 |
| Capital and Intermediate Goods | -23.2 | 2.6 | -25.1 | 62.3 | 66.9 | 60.5 | 67.3 |

Source: own construction based on data obtained from Memorias Anuales del Banco Central, The Central Bank of Argentina, several annual issues, 1976-81

[101] This dramatic fall of the level of manufacturing production has been studied by several authors D. Azpiazu, R. Bisang and B. Kosacoff, ''Dos estudios sobre el caso Argentino (1973/84), Documento de Trabajo, CEPAL, No. 22, 1987a; J. Katz and B. Kosacoff, El Proceso de Industrialización en Argentina: Evolución, Retroceso y Prospectiva, CEPAL, 1989; A. Dorfman, Cincuenta años de industrialización en la Argentina, Buenos Aires, (1983), Op. Cit.; B. Kosacoff, ''El Proceso de Industrialización en Argentina'', Documento de Trabajo, CEPAL, 1984; J. Lucangelli and J.V. Sourrouille, ''Apuntes sobre la historia reciente de la industria argentina'', Boletín Informativo Techint, No. 219, 1985.

The disarticulation of industry was an across-the-board process from 1979 on: in the period 1979-81, the production of finished consumer goods declined by 19.5%, and that of capital and intermediate goods dropped by 25.1% (Table III.9). This was in sharp contrast to the evolution of the previous years (1976-78), when these sectors experienced growth, albeit at different rates (13.9% and 2.6% respectively). Taking the period 1976-81 as a whole, there is a great disparity in the performance of these sectors: the production of finished consumer goods declined by 8.4%, and that of capital and intermediate goods fell by 23.2%. This non-uniform evolution caused an alteration in the manufacturing structure: the output-share of finished consumer goods increased from 32.7% in 1970-74 to 39.5% in 1980-81, and that of capital and intermediate goods dropped from 67.3% to 60.5% in the same period (Table III.9).

In a more detailed analysis, in the period 1976-81, the production of chemicals, rubber, petroleum, other derivatives and plastics and of base metals experienced the highest fall (41.6% and 51.2% respectively - see Table III.9). Consequently, the output-share of these sectors dropped from 20% and 8.8% in 1970-74 to 13.5% and 4.2% in 1980-81 respectively. On the other extreme, the best performance in relative terms corresponds to the sectors of food, beverages and tobacco, machinery and motor vehicles with a growth of 4.9% and 5.8% in the period 1976-81. This resulted in an increase in their shares in manufacturing output from 18.3% and 22.3% in 1970-74 to 23.7% and 28.9% in 1980-81 respectively (Table III.9). This growth was due to the strong comparative advantages of Argentina in the case of the production of food, beverages and tobacco, and of the high level of effective protection in the case of the production of machinery and motor vehicles. Out of manufacturing production, total exports represented only 6% during the period 1976-81. In addition, more than 85% of the value added by this sector was produced by industries which destined less than 10% of their production to the external markets and only fifteen types of industries were exporting more than 10% of their production[102].

[102] D. Azpiazu, R. Bisang and B. Kosacoff, ''Perfil y comportamiento de las empresas exportadoras de manufacturas'', Documento de Trabajo, CEPAL No. 6, 1987b.

With regard to the manufacturing sector, the final comment to be made is that such a tremendous fall in industrial production has *no* precedent in the country's history. Although there had been several industrial setbacks over the period 1945-75, the most serious took place in 1962, and was of 9.9%, only two-thirds of the decline of 1980, and less than half of the decline of the period 1979-81[103]. What is more, there is *no* incidence of a consecutive drop over a period of three years, something which occurred between 1979 and 1981.

The analysis now expands on the evaluation of the saving and investment process and the identification of the economic sectors which were demanding financing (units with deficits) and those which were supplying financing (units with surplus). The objective is to examine the consequences of the policy-reforms discussed earlier on both the level and sectoral distribution of two main factors of growth: saving and investment. As shown in Chapter II, Section 3, the aggregate budget constraint of the economy - total income equals total expenditures - can be written as the sum of the surplus/deficits of all economic units. That is to say, based on this macro-economic identity, the sum of the surpluses/deficits of all economic units must be equal to zero. With the information available for Argentina, it is possible to estimate the surpluses/deficits of the private (SupP/DefP), government (SupG/DefG) and foreign (SupX/DefX) sectors only.

[103] Own estimation based on data shown in Graph III.1

Table III.10

Saving, Investment and Financing, 1970-81

(Percentage of GDP)

| Period | SupP/ DefP | PS | PI | SupG/ DefG | GS | GI | Inflation Tax | SupP*/ DefP* | SupG*/ DefG* | SupX/ DefX |
|---|---|---|---|---|---|---|---|---|---|---|
| 1976 | 15.2 | 25.6 | 10.4 | -12.9 | -1.70 | 11.2 | 8.9 | 6.3 | -4.0 | -2.3 |
| 1977 | 14.7 | 27.4 | 12.7 | -11.9 | -0.40 | 11.5 | 5.4 | 9.4 | -6.5 | -2.8 |
| 1978 | 13.7 | 23.0 | 9.3 | -10.1 | 1.90 | 12.0 | 4.6 | 9.1 | -5.5 | -3.6 |
| 1979 | 7.4 | 18.9 | 11.5 | -9.0 | 1.00 | 10.0 | 4.7 | 2.7 | -4.3 | 1.6 |
| 1980 | 4.2 | 18.0 | 13.8 | -11.3 | -2.20 | 9.1 | 3.6 | 0.6 | -7.7 | 7.1 |
| 1981 | 6.2 | 16.6 | 10.4 | -15.0 | -6.60 | 8.4 | 5.1 | 1.1 | -9.9 | 8.8 |
| 1976-81 | 10.2 | 21.6 | 11.4 | -11.7 | -1.33 | 10.4 | 5.4 | 4.8 | -6.3 | 1.5 |
| 1976-78 | 14.6 | 25.4 | 10.8 | -11.6 | -0.07 | 11.6 | 6.3 | 8.3 | -5.3 | -2.9 |
| 1979-81 | 5.9 | 17.8 | 11.9 | -11.8 | -2.60 | 9.2 | 4.5 | 1.4 | -7.3 | 5.9 |
| 1970-74 | 4.2 | 17.0 | 12.7 | -5.4 | 3.19 | 8.6 | 3.6 | 0.6 | -1.7 | 1.2 |

Where: (PS) and (GS) mean the flows of saving of the private and government sectors; and
(PI) and (GI) mean the flows of physical investment of the private and government sectors.

| Period | SupX/ DefX | SupN/ DefN | NS | NI | SupP/ DefP | PS | PI | SupG/ DefG | GS | GI |
|---|---|---|---|---|---|---|---|---|---|---|
| 1976 | -2.3 | 2.3 | 23.9 | 21.6 | 15.2 | 25.6 | 10.4 | -12.9 | -1.7 | 11.2 |
| 1977 | -2.8 | 2.8 | 27.0 | 24.2 | 14.7 | 27.4 | 12.7 | -11.9 | -0.4 | 11.5 |
| 1978 | -3.6 | 3.6 | 24.9 | 21.3 | 13.7 | 23.0 | 9.3 | -10.1 | 1.9 | 12.0 |
| 1979 | 1.6 | -1.6 | 19.9 | 21.5 | 7.4 | 18.9 | 11.5 | -9.0 | 1.0 | 10.0 |
| 1980 | 7.1 | -7.1 | 15.8 | 22.9 | 4.2 | 18.0 | 13.8 | -11.3 | -2.2 | 9.1 |
| 1981 | 8.8 | -8.8 | 10.0 | 18.8 | 6.2 | 16.6 | 10.4 | -15.0 | -6.6 | 8.4 |
| 1976-81 | 1.5 | -1.5 | 20.2 | 21.7 | 10.2 | 21.6 | 11.4 | -11.7 | -1.3 | 10.4 |
| 1976-78 | -2.9 | 2.9 | 25.3 | 22.4 | 14.6 | 25.4 | 10.8 | -11.6 | -0.1 | 11.6 |
| 1979-81 | 5.9 | -5.9 | 15.2 | 21.1 | 5.9 | 17.8 | 11.9 | -11.8 | -2.6 | 9.2 |
| 1970-74 | 1.2 | -1.2 | 20.1 | 21.3 | 4.2 | 17.0 | 12.7 | -5.4 | 3.2 | 8.6 |

Where: (NS) and (NI) mean the flows of National Saving and National Investment respectively; and (Sup/Def) means the surplus or deficit of the External Sector (X), National (N), the Private Sector (P) and the Government Sector (G).
Source: own construction based on data obtained from Memorias Anuales del Banco Central, The Central Bank of Argentina, several annual issues, 1976-81 and Estudios, Estadísticas de la Evolución Económica de Argentina, 1913-1984, Op. Cit, 1986

Looking at the evolution of the surpluses/deficits of these three economic sectors, it is observed that the government and the foreign sector were the units which demanded financing (Table III.10). During the first three years, these funds were supplied by the private sector (SupP/DefP) which recorded a surplus of 15% of GDP on average. Thereafter, from 1979 on, the external sector began to raise its financing of a growing domestic absorption and, at the same time, the private sector reduced its levels of surplus. Between 1978 and 1981, the saving rate of the foreign sector (SupX/DefX)

increased from -3.6% to 8.8% of GDP. That is to say, in a period of three years, the country accumulated a deficit in the balance of trade of 21.1% of GDP. Taking into account that the deficit of the public sector (SupG/DefG) did *not* change over this period on average, the internal counterpart of this higher foreign saving was the reduction in the surplus of the private sector (SupP/DefP), which fell markedly from 13.7% of GDP in 1978 to 6.2% in 1981 (Table III.10). The substitution of domestic for foreign savings implied an increase in the foreign indebtedness of the country as a whole, and this had serious implications which will be discussed below. Before this, an assessment of the levels and distribution of the flows of saving and investment is undertaken; that is, the factors behind the changes in the surplus/deficit of the economic sectors.

As can be seen in Table III.11, the private sector was the only unit which had positive saving (PS) over the first three years (25.4% of GDP on average between 1976 and 1978). These funds went to finance the national investment (NI) of 22.4% of GDP - half private and half public - and the excess of expenditure over income (negative saving) of the public (GS) and the deficit of the foreign (SupX/ DefX)) sectors of 0.1% and 2.9% of GDP respectively (Table III.11). However, it should be stressed that the generation of this high rate of saving of the private sector was *not* entirely a *voluntary* phenomenon. Indeed, the erosion effect of inflation on the stock of money in real terms caused an undesired loss of purchasing power for individuals or, a '*non-voluntary*' or '*forced*' saving (Inflation Tax) of 6.3% of GDP on average over the period 1976-78 (Table III.10)[104]. Therefore, the genuine or voluntary rate of saving of the private sector (total private saving (PS) – inflation tax) was 19.1% of GDP on average; which means 2.7% of GDP higher than the rate of the period 1970-74 (Tables III.1).

An examination of the above figures *year by year* reveals that the rate of saving of the

[104] The inflation tax ($\delta t$) was estimating using the following formula: $\delta t = [- xt\text{-}1 (\pi t) / (1+\pi t)]$; where: xt-1= stock of money in real terms at time (t-1) and $\pi t$ = rate of inflation rate. For a formal analysis of capital gain/losses on the financial assets see Chapter IV, Section 2.

private sector not only did *not* increase after the financial liberalisation reform but in fact, declined sharply from 27.4% of GDP in 1977 to 23% in 1978. This trend continued thereafter in the period of financial integration into the international capital markets, and the rate of saving dropped to 18.9%, 17.5% and 16.6% of GDP in 1979, 1980 and 1981 respectively. In the previous years (1976-78), the rate of the public saving had risen as a result of the fiscal adjustment. However, as with the private sector, the large inflow of foreign capital which the country received after the opening-up of the economy to the world capital markets (1979-81), caused a rapid and systematic increase in public expenditure and, therefore, a decline in the rate of saving of the government from 1.9% of GDP in 1978 to (-6.6%) in 1981. The combined evolution of the private and public savings explains the deterioration in national savings, which dropped from 27% of GDP in 1977 to 10% in 1981, that is, a fall of more than 60% in a period of four years (Table III.10).

As can be observed, the reduction in savings did *not* have a significant effect on the rate of private investment, which followed a pro-cyclical pattern: it increased in periods of growth to 24.2% of GDP in 1977 and 22.2% in 1979-80 and decreased in periods of recession to 21.3% 1978 and 18.8 of GDP in 1981 (Table III.11). In the case of the public sector, the construction of the infrastructure in preparation for the Football World Cup helped to sustain a high rate of investment. Subsequently, this rate was reduced in an attempt to close the large fiscal deficit. Nevertheless, the rate of investment (private and public) remained very stable at around 21-22% of GDP until 1981, when it dropped and reached the minimum level: 18.8% of GDP (Table III.11).

The above analysis shows that that the evolution of the rates of saving and investment of the private sector over the years 1977-81 neither fulfilled the neoclassical prediction *nor* achieved the government's aims. In effect, the premise that the financial de-regulation and the liberalisation of the interest rate would raise both national and foreign savings and that these new resources, plus a more efficient resource allocation, would increase the rate of investment, fostering economic growth, was *not* borne out in

this case[105]. In reality, the private sector of Argentina increased its expenditure on finished consumer goods and decreased its rate of saving. This was the result of the relaxation of the *liquidity constraint* on individuals as a consequence of: (a) the increase in liquidity in banks after the liberalisation of interest rates in mid-1977; (b) the authorisation of the free movement of foreign capital at the beginning of 1979; and (c) the *wealth-effect* on financial portfolios due to the continuous appreciation of the peso[106]. The combination of the liquidity and wealth effects more than compensated for the negative effect of the higher real rates of interest (price-effect) on spending which resulted from the banking reform. This helps to explain the increase in total consumption and the consequent reduction in the aggregate rate of saving. Furthermore, this change in the allocation of private income was *not* the consequence of inflation, since the rate of *voluntary saving* (net of the inflation tax) also fell sharply - from 22% of GDP in 1977 to 18.4% in 1978, and subsequently to 14.2%, 13.9% and 11.5%[107].

With a declining rate of national saving and a constant rate of investment, the gap was financed by external funds after 1977. In this year, the rate of investment was financed entirely by national savings, but by 1981, more than 50% of the capital formation was financed by foreign funds. Nonetheless, taking into account that total investment did *not* increase in these years, it can be concluded that foreign savings, in reality, went to finance an increase in consumption rather than more physical investment. The financial counterpart of this was an increase in the country's foreign indebtedness. The size, speed of accumulation and the economic background against which these foreign obligations were accrued resulted in a structural change with long-term consequences for the economy of Argentina.

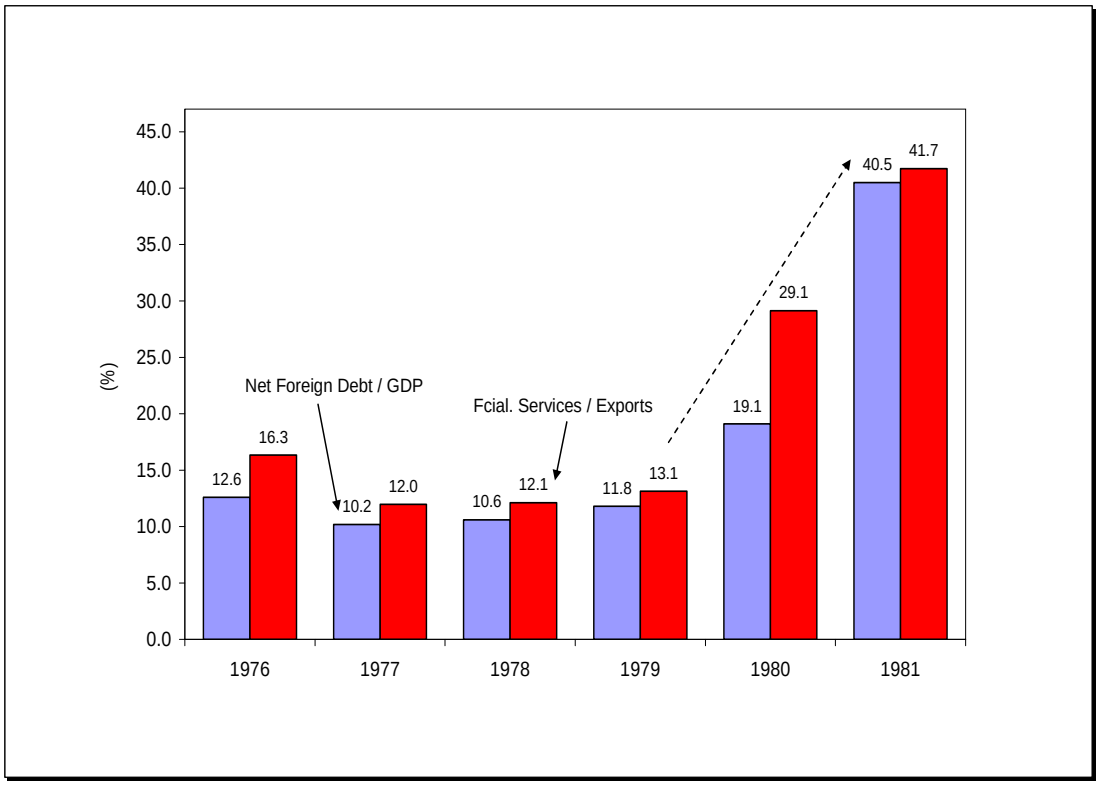
---

[105] For a detailed analysis of the theory of financial liberalisation and its effect on economic growth, see Chapter II, Section 2.
[106] The generation and propagation of the growing liquidity after the financial liberalisation reform of mid-1977 is discussed in depth in Chapter VI, Section 3.
[107] Own estimation based on data shown in Table III.11

Graph III.13

Evolution of the Country's Level of Solvency, 1976-81

(Percentage points)




Source: own construction based on data obtained from Memorias Anuales del Banco Central, The Central Bank of Argentina, several annual issues, 1976-81.

What is more, 91% of these obligations were generated between 1978 and 1981, when the debt rose by US$ 25,993 million. At the same time, as discussed above, the high interest rates in the domestic financial market together with the continuous overvaluation of the peso generated a widespread erosion of the industrial base and the stagnation of the country's exports.

The combination of the debt burden and the disarticulation of production sector ended up compromising the country's ability to fulfil its foreign obligations. Evidence of this is the sharp deterioration in the level of solvency of Argentina over these years. As shown in Graph III.13, the ratios of the financial services to total exports and the stock of net

foreign debt to aggregate output climbed respectively from 10.6% and 12.1% in 1978 to 40.5% and 41.7% in 1981. Whereas the country's external debt in 1978 was equivalent to 1 year of total exports and 15% of the GDP, in 1981 these obligations represented 3.5 years of exports and 45% of GDP.

As discussed in Section III.2, during the ISI years, Argentina repeatedly faced foreign exchange crises as a result of a disadjustment between the rates of growth of imports and exports plus a limited availability of foreign financing. These were, however, crises of ***liquidity***, which were dealt with by a devaluation of the peso leading to reduction in domestic demand, resulting in a drop in imports and a rise in the amount of goods for export. That is to say, these were ***flow-flow*** disequilibria generated by a disadjustment between the trade disequilibrium and the amount of financing (foreign exchange) held by the Central Bank.

However, the financial liberalisation and opening-up to the world capital markets carried out in 1978 when abundant foreign financing was available, provided all the liquidity necessary to cover a growing trade imbalance. The mounting dependence on foreign savings resulted in a huge ***stock-flow*** imbalance between the magnitude of the foreign obligations and the country's capacity to meet them. The internal counterpart of this was the disadjustment between the ***stock*** of debt accumulated by the productive sector with the banks and its re-payment capacity (***flow*** of income), which resulted in a widespread problem of ***solvency*** for the local financial system at the beginning of the 1980s (banking crisis).

While the historical ***flow-flow*** disequilibria could be resolved in a relatively short period of time (one to two years), the ***stock-flow*** disadjustments generated during the years of military rule represented the most important structural change since the 1930s and would radically affect the economic performance of the country for many years. For the first time ever, Argentina would experience ten years (1980-90) of zero economic growth on average; GDP actually fell by -0.6% over this period.

## III.5 CONCLUSIONS

In the mid-1970s, Argentina was in the throes of a deep political and economic crisis. The armed forces took power in March 1976 and set in motion a transformation of the development strategy which the country had been pursuing since the 1940s. They believed that the strategy of 'forced' industrialisation by import substitution and the policy of State intervention were to blame for the disappointing economic performance: the average rate of growth was low because it was extremely uneven, the availability of foreign exchange was a recurrent constraint on economic development, the industrial sector was overprotected and uncompetitive and the policy of financial repression had a negative effect on the saving-investment process. To remedy this, the decision was taken to abandon the ISI in favour of an *outward-looking-market-oriented* model of development that would allow Argentina to make the most of its comparative advantages by integrating the country into world trade and financial flows. In line with economic theories in vogue at that time, a plan of trade and financial liberalisation was designed. This included the de-regulation of market prices and wages, the opening-up of the economy to international trade and investment via the elimination of quantitative barriers (quotas and licences) and restrictions on foreign investments. In the financial sector, the liberalisation of interest rates and the de-regulation of the banking system were seen as fundamental measures to raise the rate of saving and to improve the efficiency of investment and finally, in an attempt to increase financial competition, restrictions on foreign capital movements were lifted. In addition to the implementation of this ambitious programme of economic reform, the government also put into practice stabilisation measures to tackle the immediate problem of galloping inflation.

The liberalisation *cum* stabilisation policies applied during the period 1976-81 had far-reaching consequences for the Argentine economy. Price stabilisation was not achieved and the liberalisation of interest rates together with the opening-up of the economy to the international markets had harmful effects on both the real and financial sectors. On the productive side, the level of activity and total exports stagnated and the

country suffered a marked process of de-industrialisation. This was the result of the combined effect of the high interest rates in real terms which prevailed in the local financial system and the continuous overvaluation of the peso, which allowed cheap foreign imports to flood the domestic market. On the financial side, the country faced a widespread problem of solvency which culminated in a collapse of the banking system in the early 1980s, without precedent in the history of Argentina. The predictions of the neoclassical theorists on which the policy was based were not fulfilled; the financial liberalisation did not result in an increase, but rather in a decrease in the rate of saving. In four years, national saving dropped by more than 60%, from 27% of GDP in 1977 to 10% in 1981. This decline in national savings occurred in a period in which the level of domestic investment remained constant and thus, the gap was financed by external funds (foreign savings). This caused an increase in the country's foreign indebtedness to hitherto unseen proportions. More importantly, this rapid increase in the foreign obligations was accrued while Argentina was experiencing an across-the-board process of de-industrialisation, which seriously diminished its capacity to repay what it had borrowed.

During the ISI years, with limited access to foreign financing, the typical economic crises had resulted from an inconsistency between the level of domestic absorption and the capacity to generate the amount of foreign exchange necessary to sustain the rate of growth. These were, in essence, crises of liquidity (*flow-flow* disadjustments) which could be remedied in one or two years by devaluing the peso, thus generating a contraction in domestic demand and restoring the external surplus. In contrast, the economic problems of the early 1980s were the consequence of an inconsistency between the amount of the foreign debt (*stock*) and the country's ability to meet its obligations (*flows*). This time the problems were of solvency and, therefore, far more difficult to resolve. Such a large *stock-flow* disadjustment had never been seen before in the Argentine economy and its effects would be felt for many years.

# CHAPTER IV

# INSTITUTIONAL CHANGE, FINANCIAL STRUCTURE AND BANKING SYSTEM

## IV.1 INTRODUCTION

This Chapter presents a macro-economic evaluation of the financial reform implemented in Argentina over the period June 1977 - March 1981. During these years, the country's financial system went from being highly repressed and shallow through a process of rapid financial deregulation and deepening, which culminated in a far-reaching banking crisis. The aim of this study is to identify the policy, economic and institutional factors responsible for the financial 'boom and bust'. For the first time, a *quantitative* and *qualitative* examination of the macro-financial structure of Argentina has been undertaken, analysing the size, evolution, composition and distribution of sectoral portfolios and the risk associated with the financial positions taken by both debtors and creditors in the economy between 1977 and 1981. The underlying idea is that banks are middle-men and thereby, the degree of fragility or robustness of the country's financial structure is crucial for the soundness of the banking system.

In general, the configuration of any country's financial structure is the result of the following factors: one, the existing macro-financial arrangement or starting point; two, the design and application of the economic policies and institutional rules; and three, the way the economic agents react to these and other shocks, allocating funds according to their preferences and possibilities as well as to the risks and returns of all assets traded in the economy. In addition, as shown in Chapter II, it should be considered that the real and financial markets are linked via the concept of *surplus/deficit*: the difference between the flows of savings and investment (from the real side) or, alternatively, the supply of / demand for assets (from the financial side). This means that the *size* and *evolution* of sectoral surplus/deficits - two main components of the country's financial structure - can be affected not only by the monetary and financial polices, but also by all measures and shocks in the real side of the economy, including fiscal and exchange rate policies. On this basis and taking into account these elements, the empirical study of the financial structure of Argentina is undertaken using the analytical framework constructed in Chapter II.

The remainder of this Chapter is arranged as follows. Section two deals with the initial conditions under which the Argentine banking system was liberalised. The goal is to pinpoint the macro-economic factors which contributed to the financial situation, and to identify the main features of the country's financial structure before the reform of mid-1977. In addition, this analysis will be used later as the starting point for studying the financial transformation over the years of 'free' market operation. Section three presents the re-organisation of the banking system along the lines of the 'free' market mechanisms; and gives an account of the 'new' rules established in June 1977. In section four, the impact of the policy reform on the macro-financial structure is studied in depth. It includes an assessment of how the country's financial structure was transformed between 1977 and March 1981 and why this happened. Section five uses the results obtained in the previous section to analyse the problems of financial fragility and systemic risk and their macro-financial consequences. Finally, conclusions are summarised in section six.

## IV.2 A STATE OF FINANCIAL REPRESSION

A total re-organisation of the financial system was one of the central objectives of the military government when they came to power in March 1976. The authorities advanced the idea that the new system should be market-oriented, competitive and efficient in order to promote sustainable and non-inflationary growth[1]. The Minister of Economy José A. Martinez de Hoz said "… both flexibility and efficiency are essential in banking institutions. This can be promoted by eliminating the present system of deposit centralisation, which prevents not only sound credit supervision but also inhibits the development and the responsiveness of the financial agents"[2].

In 1976, however, a once-and-for-all reform could *not* be implemented because of a deep monetary disadjustment[3]. With inflation at 78% in the first quarter of 1976, the demand for money and other assets remunerated at negative real rates was suffering a dramatic decline. On the supply side, the public deficit was fuelling a massive increase in monetary resources. In the first quarter, the Central Bank financed 60% of the total fiscal imbalance which amounted to 13% of GDP[4]. Another important source of money creation had been the deficit of the banking system. Banks received huge amounts in credits from the Central Bank to promote specific activities and to finance non-traditional exports. Additionally, rediscount loans were channelled through the state-owned banks to finance the Provincial deficits. The money supply also increased because of financial operations ('operaciones de pase') and imports of goods which had an exchange rate insurance for an amount of US$ 2,000 million[5]. The difference between the exchange rate at which these operations were 'agreed' and that at which they were finally liquidated, produced an

---

[1] The Central Bank of Argentina (BCRA), Boletín Estadístico, 1976, p. 12

[2] Boletín Estadístico, Op. Cit., 1977, p. 25 (free translation from the Spanish).

[3] A detailed evaluation of the macro-economic situation as well as the policy-measures applied by the military government between 1976 and 1981 is made in Chapter III. Section 3.

[4] Own estimation based on data obtained from the Central Bank, Boletín Estadístico, Op. Cit., 1976

[5] '*Operaciones de pase*' in foreign currency refer to external credits taken by private companies. These assets were sold to the Central Bank, and simultaneously they were re-bought at a certain term (usually at 180 days) at the same exchange rate plus a future premium rate.

important monetary expansion. All this gave rise to a paradoxical result: balance of payments deficits together with a strong internal monetary expansion[6].

Monetary management was even harder as a result of the partial decentralisation of the financial system initiated by the third Peronist administration. Banks were authorised to receive time deposits and to allocate these funds according to their own preferences. Accordingly, a dual financial system emerged: one, totally centralised subject to 100% reserve requirements and another, completely decentralised with 0% compulsory reserves. The transfer of assets from the centralised system towards the decentralised segment produced a rapid reduction in the average coefficient of banking reserves and this in turn, caused an increase in the supply of monetary resources.

The weak monetary situation prompted the authorities to postpone the programme of financial liberalisation[7]. In the meantime, the policy was directed towards increasing he demand for local financial assets and controlling the money supply. As a result, in the third quarter of 1976, the government began to have more control over the sources of monetary creation and with it, the inflationary rhythm was reduced considerably, to 22% per month. However, by the end of this year, problems of excess supply of money re-appeared due to a surplus in the external accounts, which brought about a new acceleration in the rate of inflation. Economic instability still persisted at the beginning of 1977; and the authorities started to think that a structural reform was needed as a way of preserving the short-term stabilisation achievements. In an unstable macro-economic scenario with inflation running at 130% per year and limited control over the sources of monetary creation, the delayed financial reform was finally launched in mid-1977. The effect of these general economic conditions on the outcome of the reform will be seen later in this Chapter.

---

[6] This macro-economic inconsistency was, however, not new in the Argentine monetary and financial history during the period of industrialisation by import substitution as described in Chapter III, Section III.2

[7] This was affirmed by the ex-President of the Central Bank. Adolfo C. Díz "La experiencia monetaria y bancaria de la década del 70", in Política Monetaria y Banco Central. La Experiencia de los Años Ochenta, Valores en la Sociedad Industrial, 1994, Sep., Año XII No. 30, pp. 3-10

An ‘x-ray’ of the country’s financial structure at the moment of the institutional change is needed in order to identify its main features and how previous economic factors had produced this configuration. This analysis is undertaken using the financial matrix constructed in Chapter II. As stated earlier, at a point in time, the ‘matrix of stocks’ shows the composition and distribution of the financial wealth of the different sectors, and the structure of debts and credits among the selected economic units. Table IV.1 displays the matrix of assets (liabilities with a minus sign) for Argentina as a percentage of GDP at the beginning of the institutional reform of mid-1977. It is organised into twelve kinds of assets and five economic units: Central Bank; Financial Sector and Private Sectors; Government and the Foreign Sector[8]. The last two columns show the macro-economic condition of consistency, which states that the total sum across debtors and creditors of financial instruments must be equal to zero, and the maximum stock of assets divided by each financial instrument.

[8] The definition of the assets/liabilities included in the financial matrix is given below in the “List of Symbols” in pg. 1

Table IV.1

Stock Matrix of Assets and Liabilities, May 1977

(Percentage of GDP)

| | SECTORS | | | | | | |
|---|---|---|---|---|---|---|---|
| May-77 ASSETS | CENTRAL BANK | FINANCIAL SECTOR | PRIVATE SECTOR | GOVERN. SECTOR | FOREIGN SECTOR | ADDING UP | TOTAL ASSETS |
| 1. mon | -5.63 | -3.04 | 8.67 | | | 0.00 | 8.67 |
| 2. res | -22.98 | 22.98 | | | | 0.00 | 22.98 |
| 3. ccbg | 0.98 | | | -0.98 | | 0.00 | 0.98 |
| 4. dgbc | -0.18 | | | 0.18 | | 0.00 | 0.18 |
| 5. red | 18.50 | -18.50 | | | | 0.00 | 18.50 |
| 6. sad | | -2.58 | 2.58 | | | 0.00 | 2.58 |
| 7. tip | | -7.87 | 7.87 | | | 0.00 | 7.87 |
| 8. cred | | 16.96 | -14.22 | -2.74 | | 0.00 | 16.96 |
| 9. bon | 3.47 | 0.77 | 1.64 | -5.87 | | 0.00 | 5.87 |
| 10. jnv | 5.46 | -0.89 | | | -4.57 | 0.00 | 4.57 |
| 11. jdep | | | | | | 0.00 | 0.00 |
| 12. jcred | | 1.49 | -1.49 | | | 0.00 | 1.49 |
| 13. jbon | | 0.01 | | -9.78 | 9.77 | 0.00 | 1.76 |
| totass | 28.40 | 41.31 | 20.76 | 0.18 | 9.77 | | 92.41 |
| totliab | -28.79 | -31.98 | -15.71 | -19.38 | -4.57 | | -92.41 |
| nfw | -0.39 | 9.33 | 5.05 | -19.19 | 5.20 | 0.00 | 0.00 |
| jtotass | 5.46 | 1.49 | 0.00 | 0.00 | 9.77 | | 8.71 |
| jtotliab | 0.00 | -0.89 | -1.49 | -9.78 | -4.57 | | -8.71 |
| jnfw | 5.46 | 0.61 | -1.49 | -9.78 | 5.20 | 0.00 | |

Source: own construction based on data obtained from the Central Bank, Boletín Estadístico, May 1977.

This financial structure exhibits the characteristics of what McKinnon and Shaw called a 'financially repressed' economy[9]. That is to say, the interest rate ceilings combined with high inflation rates caused a lack of incentives for holding local assets in general and, in particular, for deposits within the formal financial system[10]. This can be seen in Table IV.1 by looking at the stock of total financial assets (totass) and the amount of deposits of the private sector (sad+ tip) in banks which reached only 20.8% and 10% of total output respectively[11]. As a result, the financial intermediation between the units

[9] For the theoretical foundation of McKinnon and Shaw's hypothesis see Chapter II, Section 2 above.

[10] As discussed in Chapter III, this was the result of a period of about 30 years in which, most of the time, the rate paid out on deposits was negative in real terms.

[11] At that time, other Latin American countries of similar relative development such as Brazil, Mexico and Chile had a ratio deposits/GDP of 48%; 45% and 43% respectively. Source: International Monetary Fund, International Financial Statistics, 1977.

with deficits and those with surpluses was constrained by the low demand for assets and, at the same time, the shallowness of the system limited the overall capacity of borrowers to absorb debts[12]. In addition, the high reserve requirements of about 70% established by the authority resulted in large amounts of compulsory deposits of the banks in the Central Bank - banking reserves (res) - which amounted to 23% of GDP. The counterpart of the policy of centralisation of deposits was the huge amount of loans granted by the Central Bank to the financial system (red) for 18.5% of GDP (Table IV.1). In turn, the financial intermediaries allocated these funds following the prescriptions as to interest rates and economic sectors or activities which the monetary authority dictated.

All the above suggests the existence of a segmentation in capital markets and thus, the chances of obtaining loans were linked *not* to the productivity of the investment project but to the 'influence of the borrower' on the bank as a result of: political pressure, cronyism, type of collateral, loan size or inducements given to credit officers. A direct effect of this is the great dispersion in the yield rates of investment projects characteristic of financially repressed economies as shown in Graph II.1 in Chapter II. The new economic team in power believed that the allocation of funds based on criteria other than market prescriptions had a damaging effect on the average efficiency of investment. The President of the Central Bank of Argentina, Adolfo Díz, stated that the setting of a 'unique' lending rate prevented a bank from distinguishing the different risk categories of projects and borrowers[13].

Another feature of the country's financial structure previous to the institutional reform was the low proportion of assets denominated in foreign currency *vis-à-vis* those in local

[12] As explained earlier in Chapter II, Section 2, for the neo-classical theorists, a policy of keeping low and negative return on financial assets has negative consequences on economic growth because: (a) it fosters current consumption instead of future consumption (savings); (b) potential lenders may decide to invest directly and not to borrow from the formal financial market and (c) interest rate ceilings may create a bias which could favour credit allocation to low-yielding-projects.

[13] Adolfo C. Díz, Op. Cit., p. 10

currency. For example, *no* deposits in dollars existed in the system on the part of the private sector (jdepp) or the government (jdepg). Additionally, the financial sector held 3.6% of its total assets in dollars (jcredf), and out of the total public bonds, only 15% were in foreign currency (jbong) (Table IV.1). These figures reflect the consequence of a long-term policy of exchange rate control and of the political decision to keep the country *out* of international capital markets.

With regard to public finance, 85% of the total government indebtedness had been raised in the local capital markets and, nearly half of it had been financed by the Central Bank in the forms of credits (ccbg) and government bonds (bonc) (Table IV.1). The rest of the national debt of the public sector had been granted by the banks following instructions given by the monetary authority. Besides this, one important source of government financing was the inflation tax: the erosion of the purchasing power of money held by the private sector (monp) because of inflation[14]. This happened because of the high inflation rate of about 130% per annum plus the large amount of money in circulation, approximately 8.6% of GDP in mid-1977. With these figures, and taking into account that the fiscal imbalance was 11% of total output in June, it is estimated that the annual inflation tax reached 4.5% of GDP[15]. This means that the inflation tax helped to finance around 40% of the total government deficit. Finally, it should be pointed out that the high real monetary balance in the hands of the private sector reflects the lack of alternatives available to individuals for distributing *risks* and *returns* among financial assets.

---

[14] The inflation tax is the capital loss suffered by the creditor of a non-index financial asset (money) whenever there is a change in the general level of prices (inflation). This is a particular case of a re-distribution of wealth as a result of changes in relative prices of assets. A thorough analysis of this topic is found in J. M. Fanelli Desequilibrio macroeconómico, restricciones financieras y políticas de estabilización, Universidad Nacional de Buenos Aires, Tesis de Doctorado, Buenos Aires 1988. See also W. Buiter, "Measurement of the Public Sector Deficit and Its Implications for Policy Evaluation and Design", Staff Papers, IMF 1983 Vol. 30, No. 2

[15] Own estimation based on data of the matrix of assets and liabilities (Table IV.1) and the rate of inflation per month in June 1977 obtained from the Central Bank, Boletín Estadístico, Op. Cit., several monthly issues 1976. With the assumption that the demand for money remained constant, the inflation tax was estimated using the formula: $\delta_t = [- x_{t-1} (\pi_t)/(1+\pi_t)]$; where: $x_{t-1}$= stock of money in real terms at time (t-1) and $\pi_t$ = inflation rate.

All the above shows the consequences of a policy of active government intervention in the financial system aimed at: (a) maintaining a high level of economic activity by lowering lending rates; (b) encouraging private investments in areas regarded as priority by the public sector; and (c) transferring resources from the financial system to the government to finance its high deficits. As stated by those who were promoting the liberalisation of the financial markets, the outcome of this policy had been a state of 'financial repression' which impinged seriously upon the ***quantity*** and the ***efficiency*** of the funds channelled through the banking system.

With this diagnosis, the policy-makers - the majority of whom had been trained in the neo-classical school of thought - decided to undertake a plan of financial liberalisation along the lines suggested by McKinnon and Shaw, which would solve all the problems faced by Argentina in the process of capital accumulation and would encourage economic growth[16].

[16] Among those sharing the neo-classical view - the so-called 'Chicago boys' of the military government - are: Adolfo C. Díz and Alejandro Reynal (President and Vice-president of the Central Bank respectively), Ricardo H. Arriazu (main financial advisor to the President of the Central Bank) and Guillermo W. Klein (the Secretary of Economic Planning and Coordination at the Ministry of Economy).

## IV.3 INSTITUTIONAL CHANGE: THE FINANCIAL LIBERALISATION OF 1977

The reform was aimed at overcoming and preventing the recurrence of problems caused by government interference in financial markets ('government failure'). In the hope of improving the process of capital accumulation, the re-organisation of the banking system initiated a radical movement towards 'free' market mechanisms. To achieve this goal, the following institutional transformations were assumed to be both necessary and sufficient: (a) the reactivation of the full capacity of the banking institutions to endorse a more effective financial intermediation; (b) the introduction of a legal framework which would encourage market competition and efficiency; and (c) the enhancement of the solvency of banks.

In June 1977, the new financial regime was introduced through two main laws devised to re-organise the system into one of fractional reserve requirements (Law 21495) and to set up a new legal framework for the functioning of financial institutions (Law 21526)[17]. The reform covered six main areas including:

Interest rates and loan allocation: the liberalisation of interest rates was at the core of the new financial regime. For the first time since 1945, deposit and lending rates were to be freely determined by the market without interference from the government. With the idea of standardising the information on interest rates and for the sake of transparency, financial agents were required to publish the 'annual effective rate' offered on deposits[18]. In this regard, the guidelines from the Central Bank on *how* and to *whom* loans were to be made were abolished[19]. Credit allocation now became the exclusive responsibility of the lending institutions. In addition, the authority would abandon the practice of charging commissions and special fees on loans; mechanisms which had been used to increase the cost of credits when the policy of interest rate ceilings was in force.

[17] Law 21495 repealed Law 20520 of 1973, which centralised the banking deposits in the Central Bank.
[18] This rate results from calculating the interests on balance with re-investments on a compound basis.
[19] A brief analysis of the financial policy applied during the period of Industrialisation by Import Substitution is presented in Chapter III, Section 2

Deposit insurance: a scheme of full deposit guarantee nominated in local currency was applied to all kinds of financial institutions[20]. The establishment of a deposit guarantee was to promote market competition by preventing the adverse consequences of pre-judgements that - in a scenario of free market rates - individuals might make about the solvency of the small institutions. Moreover, this guarantee was aimed at preventing the generalisation of liquidity crises in a banking system of fractional reserves. With deposits guaranteed, it was believed that investors would have more confidence that their funds were safe which, in turn, reduces the probability of a massive withdrawal of deposits, in the event of a problem of liquidity and solvency in one particular financial intermediary.

In November 1979, in an attempt to avoid the problem of moral hazard on the part of depositors, the full deposit guarantee was replaced by a policy of limited coverage[21]. Deposits in local currency of up to $ 1 million - about US$ 640 - were fully insured, whereas those above that amount were insured only up to 90%[22]. The adherence to the new system was decided by each institution. Those who wanted to join the scheme had to pay a monthly fee equivalent to 3/10,000 of the liabilities subject to the reserve requirements of the bank[23]. Like the previous system, deposits denominated in foreign currency were ***not*** insured.

Rediscount operations*:* the monetary authority recovered the role of lender of last resort by introducing rediscounting facilities to provide financial assistance to all kinds of financial institutions. These facilities were granted by the Central Bank to banks under the following conditions: (a) the accumulated debt for this kind of operation in one institution did not surpass 2% of its stock of deposits; and (b) the extension of these credits did not exceed 45 days in 12 consecutive months or 7 days for each operation. Within these limits, the

[20] Although there had been a system of deposit insurance for many years in Argentina, this was the first time that it had been applied in a scenario of free market determination of interest rates.
[21] The risk with a full deposit guarantee is that depositors will only consider the interest rate paid by the bank and not the soundness of the financial institution.
[22] Later on, these figures were to be adjusted by the Wholesale Price Index (WPI).
[23] This system, however, was not one of 'funded scheme' in which, the insurance fee is associated with the deposit coverage provided by the Central Bank.

rediscount operations were automatically agreed at a cost dictated by market conditions. Frequently, the rate of interest charged on these operations remained slightly above the average lending rates which prevailed in the credit market, so as to discourage banks from doing business with Central Bank funds.

Reserve requirements: one objective of the reform was to improve the efficiency of the instruments of monetary regulation in order to have better control over the expansion of monetary resources. As commented in the last section, in mid- 1977, there was a limited governance over the sources of monetary creation due to several factors[24]. One, a drastic reduction in the fiscal deficit was something which could not be achieved in the short-term. Two, the shallowness of the country's financial structure made it impossible to finance a large proportion of the public deficit with bonds. Three, the Central Bank needed to increase the stock of international reserves in order to help stabilise the foreign exchange market. Four, interest rate liberalisation would encourage capital inflows which, in turn, would further increase monetary expansion.

Taking all this into account and trying to maintain control over the money supply, in June 1977, the Central Bank decided to set a uniform coefficient of 45% for all kinds of deposits, with the intention of lowering it gradually thereafter[25].This implied a reduction in the reserve requirements of 35% (from 80% to 45%) between May and June 1977. The establishment of a single rate was aimed at facilitating monetary management, since changes in the composition of deposits (current, saving and time deposits) would not affect the value of the banking multiplier - on average - for the financial system as a whole. The problem, however, was that high reserves in banking institutions would

[24] In a system of fractional reserves, the amount of monetary resources in the economy is the result of two sources: one, the monetary creation - monetary base - as a result of the accumulation of foreign reserves as well as of the financing of the deficits of both the government and the financial sector (primary source); and two, the monetary expansion caused by the banking multiplier (secondary source). Formally, MB = FR + DC (primary source) and; MR = k * MB (secondary source); where: MB = monetary base; FR = foreign reserves; DC = domestic credit; MR = total monetary resources; and k = monetary multiplier.

[25] This rate is very high compared with international standards, which normally is in the range of 10% and 20%.

signify a large cost in terms of both the efficiency and profitability of banks. This is so because the imposition of compulsory reserve requirements is similar to a tax on the activity of financial intermediation, which can be transferred to savers by lowering the deposit rate and/or to borrowers by raising the lending rate. In either case, the result would be a higher rate of spread in the financial system[26].

The mechanism devised to offset the side-effects of the high reserve requirements was an equalisation fund of interest rates, known as the 'monetary regulatory account' (Cuenta de Regulación Monetaria - CRM)[27]. This was to remunerate the banks with a compensation rate on reserves required on savings and time deposits, and to charge a fee based on the lending capacity of commercial banks derived from deposits in current accounts[28]. In this way, the Central Bank tried to compensate for the lower cost of obtaining funds enjoyed by commercial banks due to the fact that they were able to accept deposits in current accounts unlike other finance companies (*financieras*)[29].

Free entry, capital requirements and other prudential regulations: an important measure was the elimination of restrictions on opening new institutions and new branches. After the reform, ***no*** prior authorisation was required to open new branches for national banks. This was ***not*** the case of foreign institutions which needed the authorisation of the Central Bank. In addition, as will be described later in Section 4, the transformation of some institutions into other categories of intermediaries was encouraged in order to promote market competition within the financial system.

During the period of deposit nationalisation (1973-76), the Central Bank bore directly all

---

[26] As Howard Davies and David Green stressed, ''there is no doubt that regulation imposes high costs on financial institutions and markets, costs which are ultimately passed through to the end user''. H. Davies and D. Green, Global Financial Regulation. The Essential Guide, 2008, pg. 14

[27] This equalisation fund was created by Law 21572.

[28] The reform did not allow commercial banks to pay interest on current accounts nor non-banking institutions (*financieras*) to receive current deposits.

[29] A detailed analysis of the 'Cuenta de Regulación Monetaria' (CRM) and its economic effects is given by J. Piekarz "Compensación de Reservas de Efectivo Mínimo, la Cuenta de Regulación Monetaria, el Déficit Cuasi-Fiscal del Banco Central y la Transformación del Sistema Financiero", Desarrollo Económico, Sep. 1984, pp. 231

the financial risks and thus, there was no need for prudential regulation with regard to the levels of liquidity and solvency of banks. This changed with the reform of 1977 and new rules were established in the following areas:

a. *Minimum capital*: the capital requirement varied depending on the location and on the kind of institution (banks, *financieras, cajas de crédito*, etc.). Capital requirements ranged from about US$ 6.5 million for large banking institutions located in Greater Buenos Aires to about US$ 80,000 for small 'cajas de crédito' in the provinces. These values, set at the beginning of the financial reform, were to be adjusted annually in line with the wholesale price index (WPI).

b. *Asset immobilisation*: it was required that the immobilisation of assets (non-liquid assets) should ***not*** exceed 100% of the 'net worth' of the financial institution. In the case of new institutions, this ratio was established at 50% in the beginning and, it was allowed to increase later by 10% points per annum until the general limit of 100% was reached. Furthermore, non-current assets as well as non-performing loans could ***not*** exceed 5% of the institution's 'net worth'. Physical assets, expenses and all kinds of non-current value impaired loans were considered immobilised assets.

c. *Ratio of asset and liability for lenders and borrowers*: it was established that the amount of liabilities in pesos should ***not*** exceed 25 times the 'net worth' of a financial intermediary. This limit was similar for all financial institutions. Moreover, the limit of maximum financing which a client could obtain from one institution was set at 50% of the borrower's total 'net worth'. This restriction was applied to all kind of loans, except those which used physical assets as collateral.

d. *Credit concentration*: the maximum limit of financing for an individual client was set at 40% of the financial institution's capital. Exceptions to this rule were sometimes granted in the case of foreign trading companies.

e. *Prudential regulation and banking supervision*: the Central Bank carried out both the monetary and financial regulation and supervision of banks and non-banking institutions. Supervision was to be made through the evaluation of the balance sheets, statements and reports that each financial institution had to submit regularly and with ***in-situ*** inspections.

## IV.4 POLICY REFORM AND FINANCIAL STRUCTURE

One way of studying financial crises is by considering the particular features of the institutions which failed. In many cases, this is a sensible approach because bad decisions and mistakes on the part of the bankers or problems of supervision and corruption explain bank failures. However, and particularly when trying to understand a major financial disruption, in which a large proportion of the financial system is at risk, as occurred in Argentina, to focus solely on the banks which failed may give an incomplete, and possibly misleading picture. In other words, it is vital to know if there are macro-economic factors which have put stress on the banking system as a whole[30]. This is clearly seen in the metaphor used by Hausman and Gavin: "chains break at the weakest link, but that does *not* mean that the specific flaws in the weakest link fully explain why the chain broke: one needs to know what caused the tension on the chain". They also stated "strengthening weak links in the chain only works if one succeeds in identifying the weakest link before it snaps, and even then will accomplish nothing more than causing the chain to break at another link if the tension on the chain is sufficiently high"[31]. Following this approach, in the case-study, the question to be asked is: what were the factors which put such a strain on the 'financial chain' of Argentina in these years and where were the weak links?

---

[30] Recent empirical studies have identified the most important macro-economic causes of unsound banking as: rapid credit expansions, reversal of capital inflows, declines in stock prices, increases in interest rates and corporate indebtedness, economic recessions and other shocks affecting the quality of banking assets, deposit runs and liquidity constraints, exchange rate and fiscal crises. The worldwide empirical studies in this area have been surveyed by C. J. Lindgren, G. Garcia and M. I. Saal (eds) Bank Soundness and Macroeconomic Policy, International Monetary Fund (1996). For more literature on this subject see, V. Sundurarajan and T..J.T. Baliño, "Issues in Recent Banking Crises, in Banking Crises: Cases and Issues,V.Sundurarajan and T.J.T. Baliño (eds.), International Monetary Fund, 1991; pp. 1-57; H. Baer and D. Klingebiel, "Systemic Risk When Depositors Bear Losses: Five Case Studies", in Banking, Financial Markets and Systemic Risk, Vol 7 of Research in Financial Services Private and Public Policy, G.G. Kaufman (ed.), 1995, pp.195-302; G. Caprio (Jr.) and D. Klingebiel, "Bank Insolvency: Bad Luck, Bad Policy or Bad Banking?", paper presented at the World Bank Annual Bank Conference on Development Economics, Washington, Apr. 25-26, 1996; F. S. Mishkin, "Preventing Financial Crises: An International Perspective", Working Paper, NBER, Feb. 1994, No.4636; Hausman and Gavin, The Roots of Banking Crisis: The Macroeconomic Context", paper presented at the Inter-American Development Bank Conference on Banking Crisis in Latin America, held in Washington, 6-7 Oct. 1995; G. Kaminsky and G. Reinhart, "The Twin Crises: The Causes of Banking and Balance of Payments Problems", Discussion Paper, No. 544, Board of Governors of the Federal Reserve System, Mar. 1996.

[31] Ricardo Haussmann and Michael Gavin Op. Cit.,1995, p. 1.

This assessment is an attempt to answer this question by looking at the policy, economic and institutional factors responsible for the configuration and evolution of the country's financial structure. It is based on the idea that banks are middle-men in the process of financial intermediation and consequently, their health is affected by the degree of financial fragility or robustness of all economic units. It should be stressed that a macro-consistent study of the financial relationships and the risk associated with the sectoral portfolios in Argentina over these years, has not been undertaken before. The remainder of this Chapter, therefore, is dedicated to analysing *how* the financial structure was transformed; *why* it happened and; *what* the macro-financial consequences were. The first two points are considered in this section, whereas the latter is left for the next.

### IV.4.1 Market Competition and Financial Deepening

The institutional reform of 1977 produced an important transformation both in the number and kind of agents (physical structure) and in financial portfolios (financial structure). With regard to the former, the intention was to shift from a system of 'specialised' agents for each type of operation to one of 'universal' banking in which there is one kind of financial agents for all types of operations[32]. Accordingly, the *bancos comerciales* were the agents empowered to carry out all kinds of operations and the only ones authorised to receive current account deposits. However, the new system was not totally pure since the other types of institutions which existed previous to the reform were *not* eliminated and, consequently, remained in operation; the only exception being the *sociedades de crédito para consumo*, which were abolished. Over this period, the major changes occurred as a result of the elimination of restrictions and the simplification of legal requirements which encouraged the incorporation of new institutions as well as the transformation and merger

[32] Before the reform, the Argentine financial system was made up of a wide rage of institutions which differed in the type of operations which they could carry out. Within this system there were commercial (comercial) banks with investment (inversión), development (de desarrollo) and mortgage-loan (hipotecario) banks; financial companies (financieras) with savings and loans institutions for various types of functions or activities including: savings (cajas de ahorro), hire purchase (cajas de crédito and sociedades de crédito para consumo) and mortgage-loan operations for houses and other properties (sociedades de ahorro y préstamos para la vivienda y otros inmuebles).

of existing agencies[33]. In particular, the *financieras* were given the opportunity to become commercial banks whereas, the *cajas de crédito* and *cooperativas de crédito* were 'invited' to become *financieras* or *bancos cooperativos*. A period of one year was given for compliance with the new regime. Table VI.2 summarises the changes that occurred in the type and number of private and state-owned financial institutions as a result of the reform of June 1977.

Table IV.2

Financial System: Number and Type of Institutions, May 1977- July 1979

| Type of Institution (*) | Existing in May 1977 | Ceased Operation | New Entities | Existing in July 1979 |
|---|---|---|---|---|
| Bancos Comerciales | 110 | 6 | 98 | 202 |
| Bancos de Inversión | 5 | 2 | - | 3 |
| Bancos Hipotecario | 1 | - | - | 1 |
| Bancos de Desarrollo | 2 | - | - | 2 |
| Cajas de Ahorro | 1 | - | - | 1 |
| Compañías Financieras | 79 | 16 | 81 | 144 |
| Sociedades de Credito para Consumo | 69 | 69 | - | - |
| Cajas de Créditos | 423 | 305 | 3 | 121 |
| Sociedades de Ahorro y Préstamos para la Vivienda y Otros Inmuebles | 35 | 1 | - | 34 |
| TOTAL | 725 | 399 | 182 | 508 |

(*) See above footnote no. 36 for reference of the different types of institutions.
Source: Boletín Estadístico, Central Bank of Argentina, July and Sep. 1977

First of all, it is important to clarify that the numbers in the 'Ceased Operations' and 'New Entities' columns may refer not only to closures and incorporations of new institutions but also, to those which changed category or were acquired by or merged with existing institutions. It is observed that the number of total institutions dropped by 217, due to 399 'Ceased Operations' and 182 'New Entities'. Out of the total 'Ceased Operations' only 28 were effective closures, the rest changed their legal status but remained in the system. The same happened with the 'New Entities': 30 were brand-new institutions, and 152

[33] The transformation of the existing financial agencies was established in the articles 58, 60 and 62 of the Law 21526.

were transformations of already existing agencies including: (a) 68 new *bancos comerciales* which emerged from 50 *cajas de crédito*, 17 *financieras* and 1 *sociedad de ahorro y préstamo para la vivienda*; (b) 81 new *compañías financieras* which were ex-*cajas de crédito*, and (c) 3 new *cajas de crédito*.

The above sketch shows two important characteristics of the physical configuration after the reform: one, the system was made up of a large number of institutions; and two, the commercial banks and *financieras* - the main intermediaries - experienced remarkable growth in a short period of time. All this reflects the spirit of the new policy, which aimed at promoting market competition by 'opening the door' to a large number of players. In line with the ideas of McKinnon and Shaw, the deregulation policy and the liberalisation of interest rates was regarded as essential for increasing the competition for funds in the market for deposits and for giving greater access to credits to those who wanted to borrow at competitive rates. In turn, from the perspective of the potential financers, it was a formidable opportunity to become bankers in a scenario of 'free' market operation. These two circumstances, the government's need to have many institutions operating as soon as possible on the one hand; and the desire of many aspirants to become members of the 'new club' on the other hand, helps to explain the swift approval received by many commercial banks and *financieras*, nearly doubling those which existed at the beginning of the reform[34].

In connection with the financial structure, this sub-section focuses solely on the evolution of the degree of financial deepening - the only variable that the neoclassicals considered relevant in their analysis of the soundness of a financial structure[35]. The purpose is to test the McKinnon-Shaw hypothesis about the positive effect of financial liberalisation on the evolution of the stock of asset holdings of the agents (financial deepening, something which they considered fundamental for accelerating the rate of economic growth).

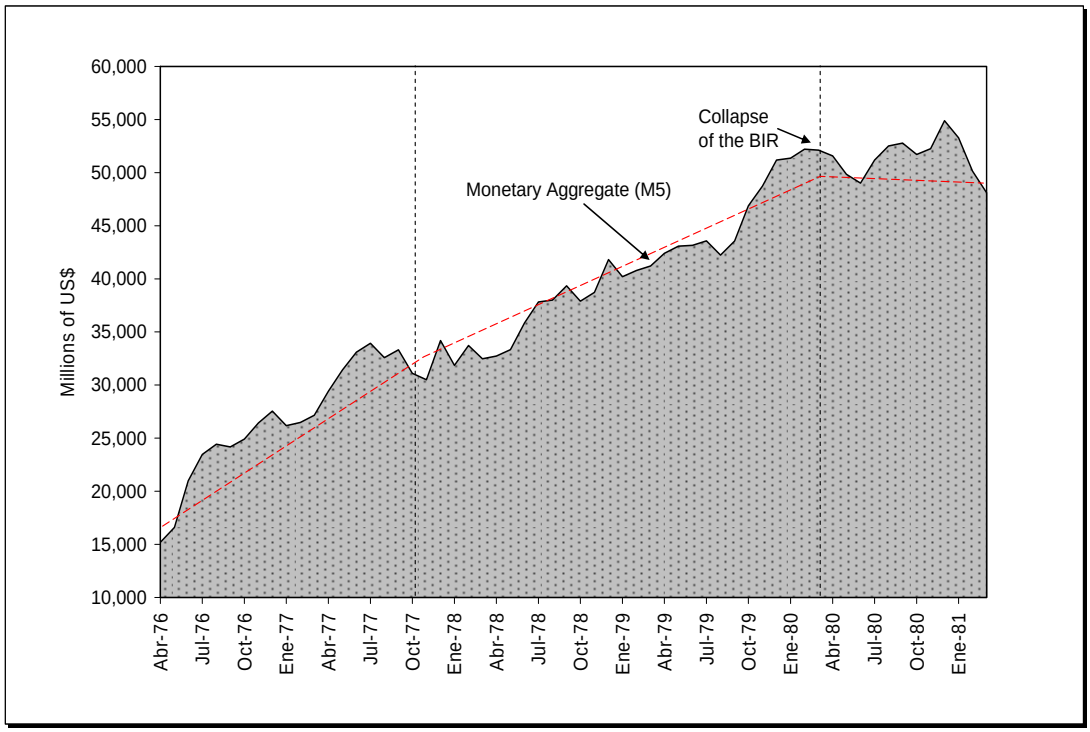
[34] Problems of selection of the new financial intermediaries and their consequences for the financial system are discussed below.
[35] The theoretical arguments of this school of thought are given in Chapter II, Section 2.

Usually, financial depth is defined as the ratio of total financial assets to total output. The information for this analysis is obtained from the matrix of stocks of assets and liabilities calculated at the end of each calendar month[36]. Chart IV.1 shows the evolution of total assets held by the private sector in the period April 1976 - March 1981[37].

Graph IV.1

Stock of Financial Assets Held By The Private Sector, 1976-81

(Millions of dollars)




Source: own construction based on data obtained from The Central Bank of Argentina; Boletín Estadístico, several monthly issues 1976-81

This graph shows the remarkable financial expansion which Argentina experienced over these years. Measured by the highest monetary aggregate held by the private sector, $M_5$, the stock of financial assets climbed from 17% of GDP in April 1976 to 47% in March

[36] Appendix to Chapter IV presents the matrices of stock of assets and liabilities for Argentina for the period July 1977 - March 1981.

[37] In order to have a clear picture of the financial evolution before and after the institutional reform of June 1977, this analysis begins one year before, in April 1976.

1981, a growth which surpassed 110% points in real terms[38]. Three different phases can be distinguished in this process. In the first period, between April 1976 and May 1977, the monetary aggregate experienced the fastest growth, rising 107% points. This was mainly the consequence of two measures: one, the severe monetary restriction applied by the government aimed at curbing the inflationary rhythm and of encouraging the demand for financial assets; and two, the continuation of the policy of partial decentralisation of deposits which was initiated in 1975 by the Peronist administration, allowing the banks to receive time deposits at free market rates. As argued earlier, this partial deregulation generated a dual system: one, totally centralised and subject to full reserve requirements; the other, completely decentralised with *no* legal reserve requirements. The monetary effect of this was a rapid decline in the average coefficient of banking reserves and a significant increase in the money supply[39].

Subsequently, the liberalisation reform of mid-1977, and the opening of the economy to international capital movements at the end of 1978 gave new impetus to financial growth which continued until the first quarter of 1980. During this second phase, the accumulation of assets by the private sector continued steadily: the monetary aggregate $M_5$ rose 54% points and this resulted in a growth in the country's financial depth from 21% to 32% of total output (Graph IV.1). In this scenario, the stock of savings and time deposits went up by 87% points and the share of banking deposits to total asset holdings of individuals increased from less than 50% to 70%, indicating the strong confidence felt by the economic agents in the banking institutions in those years. Moreover, as shown in Chapter III.4 and in Chapter VI.3, over this period, the country was experiencing a fantastic expansion in the level of economic activity.

All this suggests that, by the end of the 1970s, the predictions made by the neoclassicals

[38] $M_5$ is defined as the sum of the total assets held by the private sector at a point in time, denominated in both local and foreign currencies including: money in circulation or currency (monp), current and saving deposits in (savp), time deposits (tipp, jdepp), and public bonds (bonp, jbonp).

[39] Problems for controlling the sources of monetary creation over this period were discussed earlier in Section IV.2.

that the liberalisation of capital markets in a scenario of market competition would give rise to a process of financial deepening, which would lead, in turn, to an increase in the rate of economic growth seemed to be a fulfilling prophecy. However, this process changed thereafter, as observed in Graph IV.1, the sharp financial expansion which had begun in 1976 came to an end at the beginning of 1980. In the year March 1980 - March 1981, the process of re-monetisation languished, and the ratio $M_5$ showed an erratic pattern with an overall decline of 8% points. This was mainly the result of the reduction in the demand for currency and time deposits by the private sector, which dropped by 19% and 1.3% respectively. This stagnation in the process of financial growth was the result of serious problems in the financial system, which had been developing over these years and would lead to the worst financial crisis that Argentina had ever experienced.

### IV.4.2 Supply and Demand for Financial Assets

'*Who financed whom*' is vital in order to identify the supply of and demand for assets, and to recognise both the kind and magnitude of financial relationships between the different economic sectors. This information is obtained from the flow matrix of assets/liabilities and by considering the changes in net financial wealth ($\Delta$nfw) dis-aggregated by assets of all economic units over a period of time. As discussed in Chapter II. Section 4.2, the sectors which increase their financial wealth are those which obtain a surplus and consequently, are those which demand assets. The supply of these instruments comes from the units with deficits, which are issuing debts and thereby, are reducing their financial worth. By following the basic accounting principle that the sum of changes in the net financial wealth across all economic sectors must be zero, it is possible to identify '*who finances whom*'. Moreover, this powerful analytical tool helps to identify the 'main markets' and who the main suppliers of, and demanders for the different kinds of financial assets are, so as to evaluate how the economic units are financially linked and, ultimately, *who* bears *which* risks.

As mentioned earlier, the purpose of this analysis is to identify the magnitude of the

sectoral deficits/surplus and their consequences for the financial structure. With this aim, the original sketch has been re-arranged to show changes in the net financial wealth of all sectors dis-aggregated into the most relevant types of assets. It deals first with the period which lasted from the financial reform of July 1977 until March 1980 and then, for the period March 1980 - March 1981[40].

Table IV.3

Changes in Net Financial Wealth, Jul.1977- Mar.1980

(Percentage of GDP)

| | SECTORS | | | | | |
|---|---|---|---|---|---|---|
| Jul.77 - Mar. 80 | CENTRAL BANK | FINANCIAL SECTOR | PRIVATE SECTOR | GOVERN. SECTOR | FOREIGN SECTOR | TOTAL ASSETS |
| 1. Δ mon | -0.02 | -0.01 | -0.03 | | | -0.03 |
| 2. Δ totdep | -0.57 | 11.44 | 11.58 | -0.70 | | 10.88 |
| 3. Δ totcredt | -0.02 | 18.53 | 15.14 | 3.38 | | 18.51 |
| 4. Δ totjinv | -0.91 | -2.85 | | | -3.76 | -3.76 |
| 5. Δ totbon | -3.37 | 1.51 | 1.23 | 8.13 | 8.76 | 8.13 |
| 6. Δ red | -0.38 | -0.38 | | | | -0.38 |
| 7. Δ othasset | | 1.27 | | | | 1.27 |
| 8. Δ otheliab | 1.27 | | | | | |
| Δ totass | -4.68 | 18.46 | 12.78 | -0.70 | 8.76 | 34.62 |
| Δ totliab | 0.68 | 11.05 | 15.14 | 11.51 | -3.76 | 34.62 |
| Δ nfw | -5.36 | 7.41 | -2.36 | -12.21 | 12.52 | 0.00 |

Source: own construction based on data obtained from the Central Bank, Boletín Estadístico, July 1977 and March 1980.

The last column of Table IV.3 presents the evolution of assets dis-aggregated by each type of financial instrument. As observed, a distinctive feature of this sub-period is the spectacular growth in total financial assets (Δtotass) by 34.6% of GDP. It should be highlighted that the main beneficiaries of this process were the financial and private sectors which accumulated assets for 18.5% and 12.8% of GDP respectively. By considering the changes in the net financial wealth by sectors, the first comment to be made is that, the country as a whole increased notably the use of foreign loans. Over this period, the net foreign debt (Δnfww) rose spectacularly by US$ 15,000 million

[40] The matrices of assets and liabilities for Argentina were calculated for every month during the period 1977-81. The periods considered most relevant for this study are presented in the Appendix to Chapter IV.

(12.5% of the annual GDP), quintupling the country's net external debt (Table IV.3)[41]. Internally, these funds helped to strengthen the process of financial deepening and generated a huge amount of assets in the economy. In effect, this influx of foreign capital represented 32% of the increase in total financial assets, 56% of the asset growth in banks and 83% of the rise in total asset holdings of the private sector. At the same time, this meant a sharp increase in the external exposure of the country: the ratio of foreign debt to exports more than doubled rising from 105% in 1977 to 234% in 1980; whereas the proportion of interest payments to exports rose from 6.6% to 11.8%[42].

At this point a differentiation of changes in portfolio by asset composition is needed in order to identify the local suppliers of and demanders for financial assets. Looking at the matrix by rows, it is observed that the evolution in the country's financial structure in the sub-period under analysis (Jul.1977 - Mar.1980) is largely explained by three kinds of assets/markets: public bonds; deposits and bank loans[43]. In the case of the public bonds (∆totbon), they were issued with the aim of financing the large fiscal deficit which averaged 8.5% of GDP per annum[44]. In turn, if the quasi-fiscal imbalance of the Central Bank is included, the total State disequilibrium amounted to 10.5% of GDP per annum

[41] Own estimation based on data presented in Table IV.3. The factors responsible for this jump in the country's external debt are explained in Chapter III, Section 3.

[42] A detailed analysis of the genesis of the external indebtedness and the evolution of the foreign fragility of Argentina over these years is found in R. Frenkel, J. M. Fanelli and J. Sommer, "El Proceso de Endeudamiento Externo Argentino", Documento CEDES, No. 2, 1988; and in E. Feldman and J. F. Sommer Crisis Financiera y Endeudamiento Externo,1984.

[43] As observed in Table VI.4, the other two assets, currency (∆mon) and foreign exchange (∆totjinv) did *not* experience a significant change over the sub-period Jul.1977 – Mar.1980.

[44] There are two ways of calculating the government deficit/surplus: (a) 'over the line' by measuring the shortage or excess of the public expenditures over its revenues; or (b) 'under the line' by considering the changes in the financial wealth of the government. It should be stressed that the latter has some important advantages over the conventional measurement of the fiscal deficit. One, the identification of the sources of financing of the fiscal gap is essential for evaluating the impact of the flows of assets on the financial system. Two, the *quasi-fiscal deficit* of the Central Bank, which is not included in the government budget, can be calculated in order to obtain the aggregate estimation of the deficit/surplus of the public sector. Three, the borrowing requirements of the government can be distinguished from changes in the net financial wealth as a result of capital gains/losses on the sectoral portfolio (inflation tax). For a theoretical consideration of the 'under the line' analysis of the fiscal deficit see, for instance, W. Buiter, Op. Cit, 1983; and J. M. Fanelli, Op. Cit., 1988, Chapters 1 and 2.

(authors' estimation based on data of Table IV.3)[45]. It should be noted that out of the government bonds issued in dollars for US$ 9,960 million, about 92% of them (US$ 9,170 million) were sold in the international capital markets. This means that 60% of the increase in the foreign debt of Argentina is explained by the fiscal gap, and this share climbs to 77% when the quasi-fiscal deficit is included.

The evolution of the last two markets (deposits and banking credits) shows the strong process of financial intensification which the country experienced until the beginning of 1980. Over these years, financial business flourished as can be inferred from the remarkable increase in deposits in real terms ($\Delta$totdep) of 170% and in credits ($\Delta$totcredt) of 110%. This represented a spectacular jump in the stock of deposits and credits from 10.5% and 18.5 of GDP in May 1977 to 28.4% and 39.5% in March 1980 respectively[46]. As argued earlier, the driving forces of this growth were the interest rate liberalisation and the opening of the banking system to international capital markets. These measures provided incentives for holding local financial assets and eliminated the restrictions on arbitrages between the internal and external financial markets.

However, there were other policies besides market de-regulation which contributed greatly to financial expansion. To begin with, the monetary effect of the lax fiscal policy has already been discussed. In addition, the Central Bank had been progressively reducing the reserve requirements of banks from 45% in July 1977 to 11.5% in March 1980, giving an average coefficient over the period of 32.5%. As stressed by Adolfo Buscaglia, the expansion in the lending capacity of banks gave rise to a multiplicative effect of credits-deposits-credits, which accounted for about 35% of the deposit growth

[45] These figures are very close to the 'under the line' estimations made by Cavallo and are presented in Chapter III, Table III.3 D. F. Cavallo and A. Peña "Déficit Fiscal, Endeudamiento del Gobierno y Tasa de Inflación en Argentina 1940-1982", Revista de Estudios, Fundación Mediterranea, June 1984.

[46] Own estimation based on data shown in matrices of assets and liabilities presented in Appendix to Chapter IV.

in real terms (Δtotdep) over these years (Table IV.3)[47]. Another key factor in this process of financial expansion was monetary policy through the '*Cuenta de Regulacion Monetaria*' (CRM). This account showed a negative result of US$ 2,100 million; an amount equivalent to 24% of the increase in the monetary base, and 1/3 of the reduction in the net financial worth of the Central Bank. Finally, the process of financial deepening also benefited from the policy of pre-announcing the nominal rate of devaluation ('tablita') which was in place from the beginning of 1979. In effect, by lowering the exchange rate risk, this measure contributed to encouraging the foreign indebtedness of the private sector which passed from an increase in absolute terms of US$ 1,049 million in the two years 1977-78 to one of US$ 8,564 million in the years 1979 and 1980[48].

Contrary to the predictions of McKinnon and Shaw, another distinctive feature of these years was the high rates of spread and on loans charged by banks in real terms, which averaged 17% and 25% per annum respectively between July 1977 and March 1981. Although the purpose of this study is to identify ***not*** the reasons for but the consequences of these high interest rates on the financial structure, it is important to make clear the macro-economic conditions of supply and demand in the market for credits. Some authors have claimed that the high rates were the result of a crowding out in the market for loans, caused by the demand for funds by the government to finance the large public disequilibrium[49]. However, this hypothesis is ***not*** corroborated by the figures of the matrix of assets and liabilities, since most of the supply of credits was allocated to the private sector and only 18% went to the government[50]. It should be noticed that the lending capacity of banks was expanded as a result of the reduction in the reserve

[47] This figure represents 70% of the total monetary effect of the bank multiplier. If, the full effect is computed, the reduction in reserve requirements applied by the Central Bank would have increased the amount of deposits by 85%.The 'total' effect occurs when the banks allocate all their lending capacity to credits and then, all the funds lent return to the financial system as new deposits, giving rise to a new round of credits-deposits and so on. In other words, it happens when there is ***no*** 'filtration' in the multiplication process of deposits-credits-deposits. Newspaper article by Adolfo Buscaglia, 'Crisis en el sistema financiero', La Prensa, 24 April 1980, p. 10

[48] These estimations are taken from R. Frenkel, J. M. Fanelli and J. Sommer, Op. Cit., 1988, pp. 33 and 35

[49] A. A. Arnaudo, Cincuenta Años de Política Financiera Argentina, 1987, Chapter. 7, p. 121; Newspaper article by Adolfo Buscaglia, Op. Cit., p.10

[50] (Δ totcredt) to the private and public sectors in Table IV.3

requirements of the Central Bank and at the same time, the government was reducing the demand for funds from the banking system. The approach in this study proves that the existence of high lending rates in the banking system cannot be easily explained by the pressure exerted by the public sector on the market for credits. Instead, what is required is a micro-economic evaluation of the way in which banks decide the interest rate to be charged, something which will be undertaken in Chapter V.

As observed in the financial structure, the huge volume of financial intermediation carried out at high rates of mark-ups plus the transference of resources via the *Cuenta de Regulación Monetaria*, helped to explain the extraordinary increase in financial wealth of the banking sector ($\Delta$nfwf) by US$ 11,100 million (7.4% of GDP) between July 1977 and March 1980 (Table VI.3). This huge surplus produced a result which is really impressive: the rate of return on the total 'net worth' (capital plus reserves) of the aggregate financial sector - a proxy of the banks' profit - averaged a yield of 44% per year on a compound basis in these years. By taking into account both the high rates of spreads and the large profits of banks, it can be argued that in Argentina the interest rate competition among banks was highly imperfect and, therefore, the economic resources were not efficiently allocated during these years[51].

So far, the main conclusions which can be drawn from this analysis are: one, a strong process of financial deepening was the result of the liberalisation of capital markets, the private sector and the banks being the main beneficiaries in terms of asset growth. Two, besides the financial policy, there were other measures such as the monetary, fiscal and foreign exchange, which contributed largely to the generation of a 'credit boom' in these years. Three, the opening up of the economy to the international capital markets brought about a strong dependence on the external sector, raising the risk of devaluation for the country as a whole. Four, a large proportion of the external debt of Argentina is explained by the fiscal and ***quasi*** fiscal deficits. Five, ***no*** indication exists of a financial 'crowding

[51] Chapter II, Section 2 presents the theoretical analysis of a policy of financial liberalisation.

out' by the government and consequently, the demand for funds from the public sector cannot be blamed for the high lending rates and spreads which prevailed in the banking system. Finally, there are strong indications that the 'price competition' inside the financial markets was weak and hence, the efficiency in resource allocation - one central postulate of the neo-classical theorists of financial liberalisation - was *not* fulfilled.

The analysis now focuses on changes in the financial structure in the sub-period March 1980 - March 1981.

Table IV.4

Changes in Net Financial Wealth, Mar.1980 - Mar.1980

(Percentage of GDP)

| | SECTORS | | | | | |
|---|---|---|---|---|---|---|
| Mar.80 - Mar.81 | CENTRAL BANK | FINANCIAL SECTOR | PRIVATE SECTOR | GOVERN. SECTOR | FOREIGN SECTOR | TOTAL ASSETS |
| 1. Δ mon | -0.19 | -1.35 | -1.53 | | | -1.53 |
| 2. Δ totdep | -0.03 | 1.40 | 0.10 | 1.27 | | 1.37 |
| 3. Δ totcredt | 0.06 | 0.13 | 0.02 | 0.17 | | 0.19 |
| 4. Δ totjinv | -6.49 | 0.53 | | | -5.95 | -5.96 |
| 5. Δ totbon | 3.26 | -0.70 | -1.04 | 8.66 | 7.14 | 8.66 |
| 6. Δ red | 4.43 | 4.43 | | | | 4.43 |
| 7. Δ othasset | 0.00 | -0.18 | | | | -0.18 |
| 8. Δ otheliab | -0.18 | 0.00 | | | | |
| Δ totass | 1.26 | -0.22 | -2.47 | 1.27 | 7.14 | 6.98 |
| Δ totliab | -0.40 | 4.48 | 0.02 | 8.83 | -5.95 | 6.98 |
| Δ nfw | 1.66 | -4.70 | -2.49 | -7.56 | 13.09 | 0.00 |

Source: own construction based on data obtained from the Central Bank, Boletín Estadístico, May 1980 and May 1980

In contrast with the previous years, the process of financial deepening underwent a notable slow-down over this period. As observed in Table IV.4, total assets in the economy (Δtotass) increased by 6.9% of GDP; while the stock of assets in hands of the private and financial sectors declined by 2.5% and 0.2% of GDP respectively. In this scenario, the financial dependence of Argentina on the 'rest of the world', documented previously, continued and increased further. In one year, the country's net foreign debt grew by US$ 16,260 million (13.1% of the annual total output); a debt-increase greater

than that accumulated over the three previous years. Two related factors help to explain this: one, the needs for funds to finance the government deficit and two, the needs of the Central Bank for the financing of the current account deficit and of the people's demand for foreign exchange from the onset of the banking crisis of March 1980. The State satisfied these double needs by issuing more debt abroad and then, feeding the Central Bank with these dollars in order to sustain the foreign exchange rate policy[52]. The matrix above shows the decline in foreign assets held by the Central Bank (Δtotjinvw) by -5.95% of GDP, and an increase in the public obligations with the foreign sector (Δtotbonw) by 7.14% of total output (US$ 7,393 million). In addition, in the sub-period under study, the government increased its external obligations by 37% and this, in turn, helps to explain 55% of the rise in the foreign indebtedness of the country as a whole (Table IV.4).

Internally, all the economic sectors, with the exception of the Central Bank, had deficits and, consequently, they had reduced their net financial wealth. With regard to the private sector, the net financial wealth declined by 2.5% of total output (Table IV.4). This was the result of: one, the sharp deceleration in the evolution of deposits and credits compared with the previous years; and two, the lower holdings in currency (Δmonp) and government bonds (Δtotbonp) by US$ 3,900 million; an amount equivalent to -2.6% of GDP (Table IV.4). All this was the result of a widespread perception that the country was facing serious economic difficulties[53]. Accordingly, economic agents began to shift from local assets which had been allocated in banks to foreign assets which were then held abroad: over this period, capital outflows amounted to US$ 4,100 million[54]. In addition to this, the country was running a large deficit in the current account of more than US$ 4,700 million (see Table III.4 in Chapter III). All this led to an extraordinary reduction in the net foreign asset position of the Central Bank (Δtotjinvcb), which lost US$ 8,800

[52] For more details about the exchange rate policy applied in this period see Chapter III.3 and III.4
[53] A deeper analysis on this topic is given below in Section 4
[54] Since these funds were taken out of the formal financial system, they are ***not*** considered as assets of the private sector in the financial matrix.

million in one year; or around 6.5% of the annual GDP (Table IV.4)[55].

In aggregated terms, however, the Central Bank more than compensated for the loss in foreign assets with an increase in the stock of public bonds (∆totbonc) and in credits given to the financial sector (∆red) by 3.3% and 4.4% of GDP respectively (Table IV.4). The former contributed to financing the large fiscal deficit of this period which amounted to 7.7% of GDP. The latter represents the support given to the banking system aimed at solving what was initially perceived as a liquidity problem. However, it can be proved that this was actually something far more serious for the banks than a transitory liquidity trouble. The banks suffered a dramatic loss (∆nfwf) of about US$ 7,000 million (4.7% of total output, or 18.5% of the total loans granted to the private sector) which affected the solvency of the entire financial system. The net financial wealth of the banks dropped in just one year by 60% (Table IV.4). This result is even more striking if one takes into consideration that the banks had passed from a *positive* return on 'net worth' of 44% per annum over the period July 1977 - March 1980 to the *negative* yield of 28% in the year March 1980 - March 1981[56].

To sum up, this suggests that the main concern of the economic agents in 1980 was the stability of the banking system and the sustainability of the exchange rate policy. In effect, the withdrawal of deposits from banks and the capital flight are a clear indication of the fear that the individuals felt regarding the evolution of the liquidity and exchange rate risks. The policy-response to this - supplying liquidity to the banking sector and dollars to the foreign exchange market - helped to keep the economic plan alive, but it could not prevent an acute deterioration in the solvency of the financial system. By the same token, the financial conditions of the banks' borrowers - the government and the private sector - also worsened, aggravating further of the situation of the banking system.

[55] This was made up of a decline in gross reserves by US$ 6,400 million (from US$ 9,200 million in March 1980 to 2,800 million in March 1981) and, an increase in liabilities by US$ 2,400 million.
[56] Own estimation based on data of Tables IV.3 and IV.4.

### IV.4.3 Term-structure of Financial Assets

The present and the next sub-sections are dedicated to the analysis of the evolution of the liquidity and exchange rate risks, two main factors responsible for the re-allocation of portfolios detailed and discussed above. The analysis begins with a study of the term-structure of financial assets by asset holders which is an essential input for understanding the risk of liquidity faced by the different economic sectors[57]. It should be pointed out that, from a financial point of view, an economic agent is 'liquid', if he holds a positive net asset position - assets minus liabilities - in the short-term. It is naturally so because, in this situation, there would be enough funds to meet short-term obligations and, therefore, there is *no* risk of facing a liquidity crisis. In the same vein, from a dynamic perspective, the risk of being illiquid increases when the maturity of the debts shortens *vis-à-vis* that of the financial assets on average.

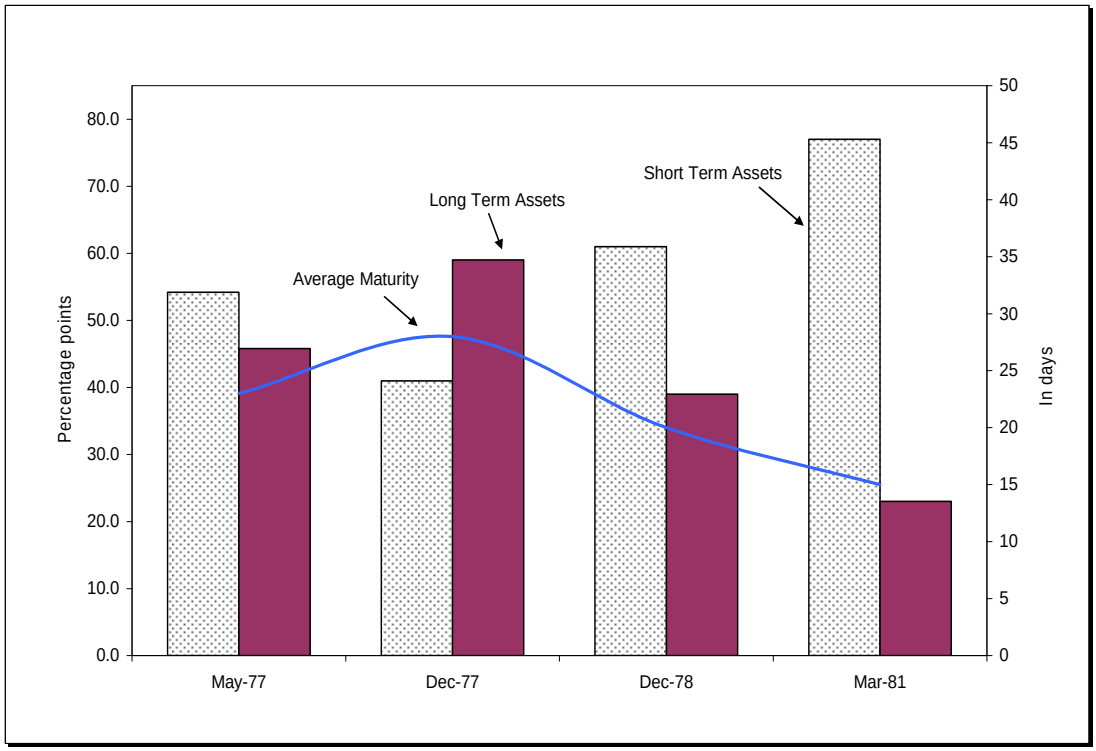
Graph IV.2 shows both the share of short-term and long-term assets (the graph bars) and the evolution in the maturity of assets measured in days (the graph line) of the private sector on average.

[57] As discussed earlier, the risk of liquidity is analysed in this Chapter from a macro-economic perspective. Chapter V, Section 4 expands on of this type of risk from the micro-economic perspective of the financial intermediaries.

Graph IV.2

Maturity and Term-Structure of Assets of the Private Sector, 1977-81

(In percentage points and in days - on average)




Source: data obtained from the Central Bank, Boletín Estadístico, several monthly issues 1977-81

Before the reform of mid-1977, the maturity of financial assets in the portfolio of the private sector was very much concentrated in the short-term. As observed in Graph VI.2, in May 1977, currency (monp) plus demand and saving deposits (sadp) reached 12% of GDP, which means that short-term assets accounted for 55% of the total assets of this sector (see also Table VI.1), the maturity of which was of 23 days on average. On the liability side, the credits received from banks were of longer maturity on average and, therefore, this sector as a whole had a liquid portfolio. The counter face of this was the non-liquid position of the financial intermediaries. While the banks granted medium and long-term loans to the private and public sectors, they were holding short-term liabilities

(deposits). At that time, however, the liquidity risk was entirely borne by the Central Bank, which was the only provider of liquidity in the economy[58].

With the institution of the fractional reserve system in mid-1977, the financial agents began to face the risk of being illiquid. Graph IV.2 shows that, at the end of 1977, the proportion of long-term assets in the portfolio of the private sector reached its maximum of 60%, and this meant that the maturity of assets rose to 28 days on average. Afterwards, maturity shortened further as individuals increased their preferences for liquidity on various occasions over the period under study. First, in 1978, when the Central Bank authorised the banks to receive time deposits for a minimum period of 7 days. This brought about a rapid portfolio adjustment raising the proportion of short-term assets from 40% to 61% points. Accordingly, the maturity of assets dropped to 20 days on average in December 1978 (see Graph IV.1)[59]. Later on, during 1980 and 1981, preferences for liquidity increased even more encouraging the economic agents to re-allocate banking deposits into more liquid assets[60]. As can be observed in Graph IV.2, in this period, the proportion of short-term assets rose and reached its maximum of 77% in March 1981. The result of this was an extra decline in the maturity of assets, which dropped to 15 days on average.

In a scenario in which individuals' preferences for liquidity were rising, the banks tried to avoid an increase in the probability of encountering liquidity problems. With this aim and, in order to keep pace with the reduction in the maturity of deposits (bank's liabilities), the length of loans on average was also reduced (bank's assets). Despite these efforts, however, it was not possible to prevent an increase in the mismatch of the maturity of assets *vis-à-vis* that of liabilities and thus, the banks ended up facing a higher liquidity risk. This is so because, a basic financial principle is that each creditor has a corresponding

[58] In a system of deposit centralisation, the Central Bank is, ultimately, the unit which provides liquidity to the rest of the economic sectors.
[59] The Central Bank of Argentina, Boletín Estadístico, Op. Cit. (1978), p. 111
[60] These liquid assets include the 'dollars bought' by the private sector for the capital flight commented on earlier in Sub-section IV.4.2

debtor(s) and hence, if one sector is liquid holding a positive net asset position in the short term, there must be one or more units which are facing the risk of being illiquid. By holding a negative net asset position, the latter economic sector (e.g. banks) is providing liquidity to the former (e.g. private sector).

The above suggests that the policy of financial liberalisation, which had proved effective for a rapid re-monetisation of the economy in general, and for an extraordinary increase in deposits and credits in particular, had been much less effective at extending the maturity of assets. On the contrary, over these years, the maturity of both deposits and credits in the banking system moved towards the short-term, shrinking the financial structure as a whole. In this scenario, the preferences for liquidity of the aggregate private sector led to a substantial increase in the liquidity risk of the banking institutions from the end of 1978 on.

### IV.4.4 Currency Denomination of Financial Assets

Based on the McKinnon-Shaw prescription, in December 1978, Argentina opened its economy to the international capital markets with the aim of attracting additional funds and at solving the problems of short-term lending and high costs faced by local investors[61]. In accordance with these ideas, policy-makers believed that by swapping short-term debts for long-term foreign loans, borrowers could extend the maturity of their liabilities which, in turn, would improve their liquidity position. This debt re-structuring though, brings another kind of problem: the exchange-rate or devaluation risk. This occurs when debts are de-nominated in foreign currency and the revenues generated by the firms are linked to the course of the internal economy[62]. This sub-section is dedicated to the study of the evolution of the devaluation risk from a macro-perspective by looking at the net asset position in foreign currency of the different economic sectors. Table IV.5 presents the composition of portfolio divided into assets and liabilities nominated in dollars at three different points in time, July 1977,

[61] For more details on this economic programme see Chapter III, Section 4.
[62] All other things being equal, exporters are *not* obviously subject to this type of risk.

December 1978 and March 1981.

Table IV.5

Stock of Assets and Liabilities Nominated in Dollars, Jul. 1977 - Mar.1981

(Percentage of GDP)

| | SECTORS | | | | | RATIO |
|---|---|---|---|---|---|---|
| Jul. 77 | CENTRAL BANK | FINANCIAL SECTOR | PRIVATE SECTOR | GOVERN. SECTOR | FOREIGN SECTOR | jtotass/ totass |
| jtotass | 5.79 | 1.6 | 0.0 | 0.0 | 10.1 | 24.9% |
| jtotliab | 0.00 | -1.2 | -1.6 | -10.1 | -4.6 | |
| jnfw | 5.79 | 0.32 | -1.56 | -10.09 | 5.53 | |
| Dec.78 | | | | | | |
| jtotass | 6.1 | 2.6 | 0.1 | 0.0 | 12.1 | 24.3% |
| jtotliab | 0.0 | -2.4 | -2.0 | -12.7 | -3.8 | |
| jnfw | 6.10 | 0.17 | -1.85 | -12.68 | 8.26 | |
| Mar.81 | | | | | | |
| jtotass | -1.6 | 6.4 | 0.7 | 0.1 | 31.1 | 31.9% |
| jtotliab | 0.0 | -4.4 | -4.3 | -28.1 | 0.0 | |
| jnfw | -1.61 | 2.09 | -3.61 | -28.02 | 31.1 | |

Source: own calculation based on data obtained from the Central Bank, Boletín Estadístico, July 1977

The last column of Table IV.5 shows the ratio of assets in foreign currency/total financial assets. As can be observed, in July 1977, this ratio was already high around 25%. However, the dollarization of portfolios further increased after the opening of the economy to international capital movements, when this ratio rose from 24.3% in December 1978 to 31.9% in March 1981[63]. Over this period, the net external debt of Argentina increased 5 times; an amount equivalent to US$ 28,100 million. As discussed earlier, the key factor is this process was the government, which explains 67% of the increase in the country's net foreign debt over these years. The consequence was a growing deterioration of the government position in foreign currency - a rising foreign exposure - as can be observed

[63] Appendix B to Chapter IV shows the composition of assets and liabilities nominated in foreign currency involved in this process.

by considering the change in its net financial worth in dollars (jnfwg) from 13% of GDP in December 1978 to 28% in March 1981[64] (Table IV.5).

The programme of pre-announced exchange rate crawling peg ('tablita') launched at the end of 1978, did encourage companies to substitute debts nominated in pesos for external loans as a means of reducing financial costs. Additionally, banks and other firms began to borrow abroad to then re-lend locally in order to take advantage of the cost differential between the national and the international capital markets, which averaged 29.7% per year in 1979 and 38.1% in 1980[65]. As observed in Table IV.5, this produced an increase in the assets and liabilities in foreign currency in the financial and private sectors. Nevertheless, the risk exposure of these two sectors was quite different. In the case of the private sector, the net financial wealth in dollars (jnfwp) decreased from -1.56% of GDP in July 1977 to -1.85% in December 1978 and to -3.61% in March 1981. In contrast, the banking sector maintained a positive net asset position (jnfwf) in this period (0.32%; 0.17% and 2.09% of total output respectively) and, consequently, they were *not* assuming 'directly' any risk of devaluation whatsoever.

What is important now is to identify the factors and variables which these economic units considered for the management of the net foreign asset position in these years. Graph IV.3 presents the external exposure of banks measured by the 'currency-ratio' (assets/liabilities denominated in dollar), and the stock of net foreign reserves in the Central Bank over the period 1977-81[66].

---

[64] In turn, this large external financing of the fiscal disequilibrium was possible because of the abundance of resources in the international capital markets at that time. These funds were largely the surplus of Middle-Eastern countries ('petro-dollars') which were deposited in banks in the 'north' (developed countries) and then, recycled towards the 'south' (developing countries). For an analysis of this process see, for instance, B. J. Eichengreen, Globalizing Capital: a history of the international monetary system, 1996, pp. 85-88

[65] The financial cost in the international capital markets includes the pre-announced rate of devaluation. These figures were estimated by E. Gaba, ''The Argentine Financial Reform'', Annex 1 Table no. 4, p. 27

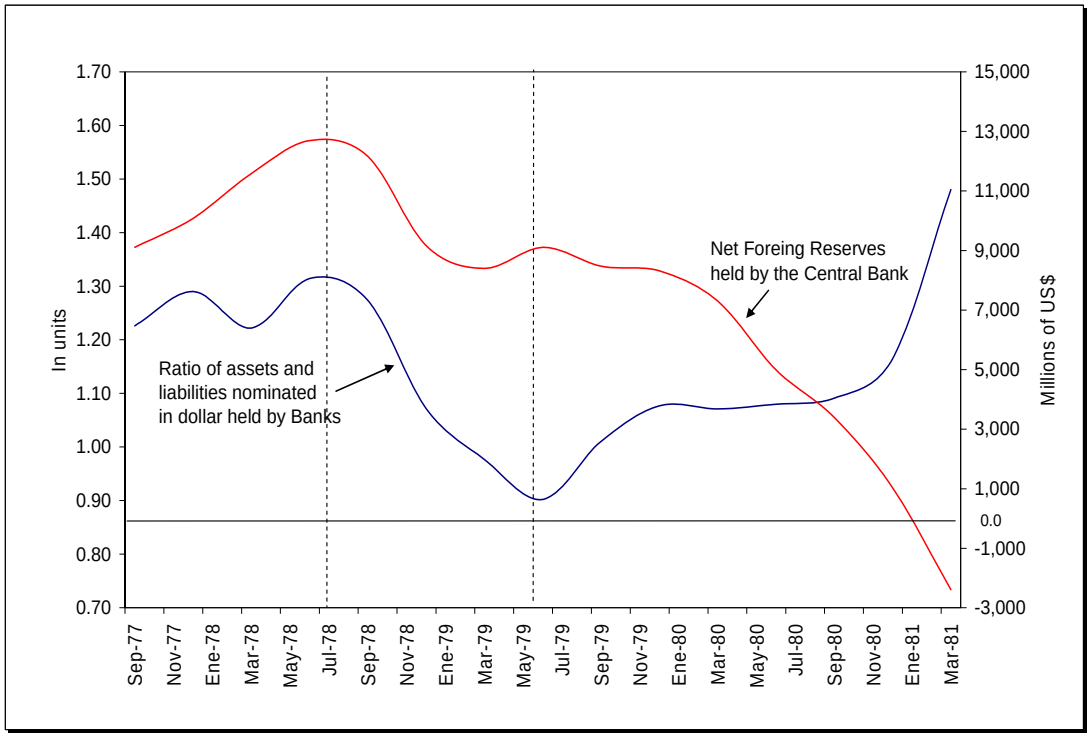
[66] It should be borne in mind that, in this period, the Central Bank was the only supplier in the market of foreign exchange.

Chart IV.3

Exchange Rate Risk of Financial Agents and

Net Foreign Reserves of the Central Bank, 1977-81

(In units and millions of dollars)




Source: own construction based on data obtained from the Central Bank, Boletín Estadístico, several monthly issues 1977-81

Three phases can be distinguished in the evolution of the currency risk faced by banks. From July 1977 to December 1978, the relation peso/dollar was fixed by the economic authority and, the agents knew neither the rate *nor* moment at which this relative price would change. In this scenario, the currency-ratio defined above was well above one, which means that the banks behaved very cautiously holding a hedge position in foreign currency, despite the large amount of foreign reserves which the Central Bank had for market intervention. During the second phase, the guidelines of pre-announcing both the speed and the rate of the nominal devaluation of the peso, plus the high amount of reserves in the Central Bank, gave the financial agents the necessary confidence to assume riskier positions and consequently, the currency-ratio was sharply reduced from 1.4 in December 1978 to a minimum of 0.78 in July 1979 (Graph IV.3).

From mid-1979 on, however, the financial agents reversed that strategy and began to return to a rather less risky position, despite the high amount of reserves held by the Central Bank and the pre-determined scheme of devaluation in place at the time. This was so, because they perceived a mounting uncertainty associated with the future evolution of the nominal exchange rate. In effect, the exchange risk premium measured by the interest rate differential - adjusted by the rate of devaluation - between the national and the foreign capital markets went from 20% per year in the first half of 1979, to 40% in the second half. At that time, the Central Bank had not lost an important amount of reserves, yet the increase in the risk-premium suggested difficulties ahead with the programme of exchange rate. All this was taken into account by the financial agents who decided to protect themselves against the risk of devaluation. Accordingly, in November 1979, the currency-ratio returned to one, which means a hedge position in foreign currency. In the next year, the Central Bank suffered a dramatic drain on reserves and this led to an increase in the 'exchange risk-premium' to 45% per annum in the second half of 1980. The banks reacted by further increasing the risk-coverage, and the ratio of asset/liability in dollars reached 1.3 in March 1981 (Graph IV.3).

Finally, it is important to know why the private sector had a positive and growing foreign exposure in a period in which the devaluation risk was rising. First of all, the aggregate private sector has to be divided into two different groups: the depositors (savers) and the borrowers (investors) of the banking system. In addition, it should be borne in mind that over the whole period 1977-81, around 98% of the deposits and 85% of the credits in banks were nominated in pesos. Table IV.5 shows that the fall in the net financial worth in dollars of the private sector occurred mainly during 1980. This was the consequence of two facts: one, the growing exchange-rate-risk encouraged depositors to withdraw their savings in pesos from the financial system, to convert them into dollars and, to send these abroad; and two, the banks' decision to swap the currency-condition of some credits granted in pesos for one of dollar nomination. This is why there was a similar growth in private sector liabilities (jtotliabp) and in banks' assets (jtotassf) nominated in dollars between March 1980 and March 1981, as can be seen in

Table IV.5.

It has been shown that the opening up of the economy to international capital markets was very effective in channelling external savings into the banking system and in contributing to the large financial expansion of these years (quantitative effect). This policy, however, was much less successful in connection with the risk of devaluation (qualitative effect), which had been rising steadily from mid-1979 *pari-passu* with the growing uncertainty in the foreign exchange market. In this context and, in an attempt to protect themselves against a higher risk of devaluation, the banks decided to change the currency nomination of part of their credits from pesos to dollars. Nonetheless, this risk-coverage was *no* more than a veil, since the increase in the exchange rate risk faced by the borrowers had a knock-on effect on the quality of the banks' assets and, ultimately, on the soundness of the financial system as a whole.

### IV.4.5 Pitfalls in the Institutional Framework

This sub-section begins by considering the rationale for regulating financial activities. It should be stressed that the regulatory role of the government in the financial sector goes beyond that in virtually almost any other sector of the economy. In capital markets, prudential regulation exists because the failure of a financial agent can have important externality-effects on the economy with high costs for the society as a whole. This is so, because a substantial fraction of their loans is financed through deposits obtained from the public and also because the banks run the exchange and payment mechanism in the economy. In addition, since the banks transform short term debts (deposits) into long term assets (loans), they hold a non-liquid position. A high leverage (debt/capital ratio) and a non-liquid situation are what explain the high level of fragility and hence, the high risk of failure which these agents face. Based on the fact that there is differential information and differential incentives between depositors and bankers, both the existence and stability of the latter depend very much on an 'intangible asset': the perception that the former have about the economic soundness of those to whom they are delegating the use of their

savings. Any event which seriously affects that 'asset' (e.g. a perceived liquidity or solvency problem) could lead to a run on the bank in which the social costs are always much greater than the private costs. In turn, if this action produces a negative externality-effect on other institutions, a run on one bank may escalate into a panic affecting the entire financial system and the whole economy. In short, paraphrasing Howard Davies, both problems of systemic risk and asymmetric information are the principal strands to the rationale for financial regulation[67].

It should be stressed that any policy of financial regulation is based on a theory or model of bank behaviour and historical experience. In the Argentine reform of 1977, following the neo-classical approach, the policy-makers believed that financial markets were like any other market[68]. Accordingly, provided that there are solvent financial institutions, free market competition and the liberalisation of interest rates were regarded as the necessary and sufficient conditions for an efficient operation of banks[69]. In this view, the regulatory policy focused mainly on the instruments for controlling the money supply and on capital adequacy requirements and less on those which discouraged and monitored the level of risk assumed by the financial agents. That is to say, although the new regime established some restrictions in an attempt to limit the risk of the banks' investment policies (e.g. asset immobilisation, lending and borrowing ratios and credit concentration), the monetary authority did *not* consider this to be a critical issue for the financial system. This explains why, in early 1978, some of these regulations were modified with the aim of granting the banks more autonomy in credit allocation. In this regard, the maximum limit of lending defined as a proportion of the bank's capital was abolished[70]. According to the Minister of

---

[67] H. Davies, ''Why Regulate?'', Henry Thornton Lecture, City University Business School, 4 Nov. 1998, pg. 3-5

[68] In the words of Bernardo Kosacoff quoted in Chapter III, Section III.3, ''*a programme of trade and financial liberalisation was organised with the aim of modernising and improving the efficiency of the economy based on the philosophy of full confidence in market mechanisms and in the subsidiary role of the State*''.

[69] The cornerstones of this policy were: (a) the reactivation of the full capacity of the banks to endorse a more effective financial intermediation; (b) the introduction of a legal framework which would encourage market competition and efficiency; and (c) the enhancement of the solvency of banks (see above, Section IV.3 in this Chapter).

[70] This was not the case of the limit defined as a proportion of the borrower's capital which remained unchanged.

Economy Martinez de Hoz, the reason for this 'de-regulation' was that the financial intermediaries had to "... fully regain their right to evaluate and determine in each case, the appropriate degree of financial assistance, taking into consideration the activity and the size of the borrower"[71]. This suggests that the monetary authority relied strongly on the effectiveness of 'market discipline' as a way of maintaining the soundness of the financial system in line with the ideas of McKinnon and Shaw.

However, as was stressed in Chapter II.2, the fundamental problem of the neo-classical theory of financial liberalisation is that it pays *no* attention to 'market failures' due to asymmetric information between economic agents. Bad lending practices and their externalities are at the root of these failures and, are what ultimately explain the role of the government in limiting and monitoring these activities. Furthermore, as stressed by Stiglitz and Greenwald, "given that the regulator *(supervisor)* has *(also)* imperfect information and can control only indirectly the bank, the theory of bank regulation is a classical principal-agent problem: the regulator *(supervisor)* (the principal) tries to control or affect the behaviour of the bank (the agent), to make the bank act more in accord with social objectives"[72]. Accordingly, it is suggested that the government should play a role in the regulation of *incentives* of banks and the *constraints* that they face, in order to discourage them from making bad loans or from lending at terms which are not commensurate with the risk. Additionally, adequate supervision is essential to guarantee that banks do not engage in bad lending practices.

Based on this approach, what follows is dedicated to showing the areas in which the Argentine reform of 1977 failed to prevent or, in some cases, encouraged high/excessive risk-taking by the financial intermediaries. It starts with the policy of market de-regulation and 'free' entry. With the aim of promoting market competition, the decision was to open

---

[71] The Central Bank of the Republic of Argentina, Boletín Estadístico, Buenos Aires 1978, p. 15 (free translation from Spanish).
[72] J. E. Stiglitz and B. Greenwald, Towards a New Paradigm in Monetary Economics, 2003, p. 209 *Italics added*.

up the door to new agents, who had to operate in a new scenario with new opportunities for both risk taking and profit making. Based on the neo-classical theory, the government selected the players taking into account the adequacy of capital and other legal requirements while, other qualifications and antecedents including knowledge, experience, reputation and honesty of the owners and managers of the institutions were not considered at all. That is to say, there was *no* appraisal of the quality of those who would be the market operators.

With regard to financial deepening and credit expansion, the lack of limits on the growth in the amount of deposits and on the number and size of loans contributed to the reduction of the banks' capacity to screen loan applications and to monitor the use of funds effectively. The capacity for risk-assessment was also weakened by some regulations of the Central Bank which helped to facilitate roll-overs of non-performing loans into new credits through cosmetic accounting[73]. In the same vein, there were neither constraints for risk taken nor incentives for risk adjustments for capital standards connected with, one, the interest rates paid on deposits and charged on loans and; two, liquidity and foreign exchange exposures. Consequently, the bankers did *not* have strong motives for a more conservative portfolio allocation. Moreover, it should be stressed that the idea of preventing the banks from taking risky actions based only on requirements of capital adequacy is mistaken as a consequence of the high leverage position of these institutions (capital/asset ratio less than 10%). That is to say, since most of the banks' assets are other people's money, the structure of incentives generally pays for misbehaviour on the part of the banks[74].

The failure on the part of the Argentine authorities to take into account the problems and consequences of imperfect information in capital markets becomes obvious by examining the deficiencies in the supervision of the financial system by the Central

[73] Magazine report, Convicción, Sunday 27, April 1980, p.12
[74] This has been pointed out by - among others - J. E. Stiglitz and B. Greenwald, Op. Cit., 2003, p. 213-222

Bank. In this regards, Tomás Baliño affirms that the procedures and practices continued to be largely biased towards monitoring quantitative rules associated with money supply rather than the 'quality' of the banks asset allocation[75]. This explains why several aspects of the credit operations including factors such as specialisation, size and loan concentration, loans in arrears and non-performing operations as well as the relationship between loans and collaterals, were not investigated[76]. The task of the Central Bank was complicated further as a result of the rapid growth in the number of banks and in the number of loan operations in an ever-changing economic scenario characterised by high and variable rates of inflation[77]. Finally, besides being short of information about the portfolio allocation of banks, the problem of the Central Bank of Argentina at that time also lay in the total lack of experience and, in all probability, ability to supervise a swiftly liberalised capital market.

With a weak institutional framework - flawed prudential regulation and defective banking supervision - the probability of cases of cheating and fraud within any financial system increases. These problems have been verified several times in Argentina where some banks misrepresented information in order to convince the authority they were behaving in accordance with the law. There are some notorious examples that illustrate this graphically. The Secretary of Economic Planning and Coordination Guillermo Klein recognised this when he said "the *Banco de Intercambio Regional* (BIR) had *not* complied with some technical requirements of the Central Bank laid down in article 34 of law 21526; but this was *not* easy to prove, as the bank had concealed these irregularities and the supervision procedure of the monetary authority was *not* adequate"[78].

---

[75] T. J. T. Baliño "The Argentine Banking Crisis of 1980", IMF Working Paper, WP/87/77, Nov.1987, p. 41.

[76] In Argentina, over the period under study, lack of information on the part of banks regarding loans in arrears and non-performing credits is a fundamental reason for undertaking the examination of the business conditions of the banks' borrowers made in Chapter VI.

[77] The consequences of the high and variable inflation rates for financial markets are further discussed in Sections 2, 3 and 4 in Chapter V.

[78] Memorandum on the banking system made by the Central Bank of Argentina presented by Guillermo W. Klein in a press conference (free translation from Spanish). Clarín, Thursday 29, May 1980, p. 12

Moreover, important cases of delinquency and corruption in relation to the financial sector have been identified over these years. For example, the Vice-President of the Central Bank Alejandro Reynal affirmed ''on various occasions the BIR did *not* manage to maintain its cash reserves at the minimum required by the law. But, there are many other technical relationships which permit control of the development of a bank, and which in the case of the BIR demonstrated the serious situation of this bank''. In addition, he said, "this was a situation that had become more complicated over the last few years, but which was overcome by modifications in the regulations introduced periodically by the Central Bank, which were designed to give the BIR a breathing space to continue operating"[79]. In connection with this, fifteen years later, the former President of the Central Bank, Diz, admitted that the BIR and other financial institutions received special concessions following direct orders from the Presidential Palace. In return high-ranking members of the Armed Forces received 'special favours' such as long-term mortgages at very low interest rates[80].

More importantly, all these facilities were granted while the owners of the BIR were committing a spectacular fraud. This was later confirmed by an investigation which shows that during the presidential term of Piñeyro-Pacheco in the BIR, some firms which belonged to him including 'Agropecuaria S.A'.; 'Concomex S.A'.; 'Mutuo S.A'. and 'Raúl Piñeyro-Pacheco S.A'. obtained loans from the bank without presenting the correct and appropriate collateral, and that these loans were several times greater than the 'net worth' of the companies themselves. In turn, these credits were used to purchase BIR shares, despite the fact that the bank was on the verge of bankruptcy[81]. The investigation also revealed that the companies owned by Piñeyro-Pacheco had

[79] This included the Newspaper interview, La Razón, Monday 31, May 1980, p. 7

[80] This confession was made more than fifteen years later by Adolfo Díz - President of the Central Bank between 1976 and 1981 - to the author in a personal interview (free translation from Spanish).

[81] At the beginning of 1980, José Rafael Trozzo sold the *Banco de Intercambio Regional* to Raúl Piñeyro-Pacheco - one of the main borrowers of the bank - who became President of the Board of Directors. The excuse was "to rescue the institution".

issued faked cheques to try to create 'fictitious profits' in order to avoid the closure of the BIR, something which finally occurred in May 1980[82]. On top of this, it was discovered that the fire in the main computer centre of the BIR in April 1979, was not an unfortunate accident, but a 'planned operation' to simply wipe out all records of transactions of the bank[83].

In the case of the *Banco de Los Andes* and *Banco Oddone*, Secretary Klein said: "they had been violating regulations by making loans to themselves (companies linked to them) and resorting to subterfuges to cover this up"[84]. In this regard, it is worth mentioning a story told by the ex-President of the Central Bank Adolfo Díz[85]. The Bank Oddone began to operate in November 1979. It was part of an important Argentine conglomerate specialising in oil, insurance and construction among other sectors ('Oddone Group'), In barely two months it was in ninth place among private banks based on the amount of deposits[86]. At the beginning of the year 1980, all its records showed the institution to be in 'perfect shape', with loan allocation to very important and well established firms. The Central Bank did not have any thing to complain about regarding the situation of the bank. One day, the Federal Police found a clandestine printing press located in a basement in the 'city' of Buenos Aires. At first, it was believed that the find was a 'mere' illegal commerce with no further implications. However, since all the products of this printing firm were papers, documents made for various firms and for one bank, *Banco Oddone*, the Police called in the specialised inspectors of the Central Bank. The surprise was that the printing press belonged to the bank and was used to falsify the papers (logos, internal documents, seals, etc.) of the

---

[82] With the closure of the BIR, Piñeyro-Pacheco and other directors were arrested. By that time, Trozzo had fled to Mexico, a country which did not have an extradition treaty with Argentina. In March 1981, Piñeyro-Pacheco was released. However, the trial continued and twelve years later, in 1992, the court found Piñeyro-Pacheco, along with other members of the Board of Directors, guilty of aggravated financial misdemeanour. He was sentenced to 5½ years in prison and to pay a fine of US$ 8,000 million. As Piñeyro-Pacheco did not appear to have this amount in his possession, this sum was never paid. In addition, he did not go to jail because in Argentine law, the minimum sentence for serving prison time is 8 years. Newspaper report, Ambito Financiero, Thursday 30, April 1992, p. 21

[83] Newspaper report, Ambito Financiero, Thursday 30, April 1992, p. 21

[84] La Razón, Monday 31, May 1980, p.13

[85] This story was narrated by Adolfo Díz to the author in a personal interview.

[86] Convicción, Loc. Cit., p.12.

borrowers, in order to fake loan operations (contracts, disbursements, interest payments, etc.) between the *Banco Oddone* and several of the reputable companies which the bank had shown as its 'true and genuine' borrowers.

The above anecdotes illustrate the problems in the Argentine financial sector caused by an ill-designed institutional framework. Had the regulations and supervision been stricter, some of this excessive risk taking and misconduct could have been avoided. The authorities realised this in late 1979, only when the misbehaviour in the financial system had become glaringly obvious. The monetary authority then announced a re-organisation of the prudential regulation and banking supervision[87]: After many months of elaboration, the new rules included changes in the: (a) accounting standards for financial institutions; (b) minimum standards for external auditing and internal controls; (c) system of monitoring the financial system; and (d) system of inspections and verification of financial institutions. These regulations were aimed at homogenising and extending the use of information, documentation and control within the financial institutions. The purpose was to facilitate and to improve the activities of verification, monitoring and analysis by the Central Bank. For the first time, efforts were made to assess the internal and external aspects of the credit operations (specialisation, size, debtor, loan concentration)[88]. This was complemented by an evaluation of the performance of the financial agents including indicators of liquidity, efficiency and solvency. Moreover, by using 'alert indicators', a preventive study was undertaken to identify a priori problems of liquidity and of non-performing loans in the financial sector. The problem, though, was that this new set of rules was introduced at the end of 1981 and, therefore, came too late to prevent some of the misconduct described earlier.

[87] Memorias del Banco Central, The Central Bank of Argentina of 1979 and 1980.
[88] Guidelines for the Auditor (Manual del Analista de Control).

## IV.5 FINANCIAL FRAGILITY AND SYSTEMIC RISK

The last section focused on two main issues: the evolution of variables associated with the ***quantity*** and ***quality*** of the financial system. This study provides the key elements for an analysis of the level of financial fragility and systemic risk of Argentina over the period 1977-81. First of all, a definition of the concepts which will be used needs to be made: (a) financial *vulnerability* or *fragility* is used to describe a position of weakness for absorbing negative shocks as a result of the high risk-exposure taken by the economic agents; (b) *systemic or macro-economic risk, disorder* and *instability* refers to the effect of a negative shock which spreads throughout the financial system causing a disruption in the payment mechanism and in the banks' capacity to allocate capital. In this regard, it should be pointed out that systemic failures are usually of short duration, but can have long-term consequences. Another characteristic is that they are inherently unavoidable by individual or institutional investors and consequently, cannot be spread by portfolio management.

It has been shown that the liberalisation of capital markets was extremely successful in increasing the stocks and flows of financial assets (quantitative-effect) in Argentina until the beginning of 1980. Nevertheless, the development of various 'quality-features' of the macro-financial structure was less positive. Indeed, by trying to promote competition, many players were allowed to enter the financial markets, on the basis of only capital adequacy but ***not*** of their knowledge, experience, reputation and honesty[89]. In this way, the doors of the system were opened to 'economic predators'[90]. In addition, in the period July 1977 - March 1980, several economic polices - monetary, fiscal, banking and exchange rate - contributed to the generation of a large financial expansion which resulted in a 'credit boom'. The banks were being flooded with money and consequently, funds had to be invested quickly in productive activities. In this context, the standards of banks for *screening* and *selecting* projects and borrowers were relaxed so as to speed

[89] Vital qualities for those who believe in the importance of asymmetric information in capital markets.
[90] An analysis of the speculative behaviour of some financial intermediaries during these years is carried out in Chapter V, Section 6

up the process of lending[91]. This, however, had a negative effect on the quality of resource allocation. It should be also mentioned that after many years of operating under the direct control of the Central Bank, the banks had neither the expertise *nor* the information for sound credit allocation[92]. In this regard, the high spreads and lending rates charged by banks, together with the large profits that they made in these years, indicate the lack of price competition in the banking system and the fact, that the banks were assuming high/excessive levels of risk. By the same token, there were important cases of misbehaviour, fraud and corruption due to a flawed institutional framework and cronyism in the Central Bank where, on various occasions, the regulations were ignored, bent or modified in order to benefit some intermediaries.

Another factor that should be borne in mind is that, over these years, there was a general desire on the part of the depositors to hold liquid assets in order to be as flexible as possible in an uncertain and instable economic scenario. Not only did the macro-financial structure remain highly concentrated in short-term assets but, it actually shortened further from the end of 1977. The consequence of this was a persistent increase in the mismatch between assets and liabilities of banks and thus, in the risk of facing liquidity problems. Additionally, the concentration of the macro-financial structure in the short-term was a problem that could not be reverted by the policies which encouraged the dollarization of portfolios together with the programme of pre-announcing the rate of devaluation. These measures instead, contributed to raising primarily the vulnerability of all sectors (except banks) in connection with devaluation risk. The major threat was posed by the large external indebtedness accumulated by the public sector in these years which, ultimately, structurally changed the risk position of the country as a whole. Furthermore, the reduction of the exposure of banks in foreign currency is an indication of the growing lack of confidence of the 'city' from mid-1979 on regarding the sustainability of the exchange rate programme.

---

[91] See Chapter II, Section 2 for an analysis of the roles of the financial intermediaries.
[92] A description of the pre-1976 organisation of the financial system can be found in Chapter III, Section 2.

The above factors take on greater importance when the externality-effect as well as the inter-dependence of risks assumed by the different economic units are taken into account. In general, the position of risk of one debtor is of relevance for his creditor(s) since the economic health and the prospects of the former are what, in the end, will determine the value and liquidity of the creditors' claims. It should be emphasised that a country's financial structure is made up of a continuous multiparty network of debtor-creditor-debtor relationships, in which there are units which have the double role of being debtor and creditor of other economic unit(s). Accordingly, from a macro-economic perspective, a risk may not only be important for the first link but also, for other links in the financial chain and, hence, the possibility of a domino effect is always latent. This is evident in the case of the banks, which are at the same time debtors and creditors and, therefore, there is a kind of inter-dependence between the risks of those who supply the funds (depositors) and the risks of those who ask for loans (borrowers). This is a two way transmission of risks, from depositors to bank borrowers and *vice-versa* in which, the bank is in the middle bearing the risks on both sides of the balance sheet. In turn, the way in which the bank behaves also affects the risks borne by its depositors and its borrowers. In effect, by definition a risk-loving bank takes greater risks than a risk-adverse bank and consequently, the externality-effects that they generate on their clients are different.

By taking the risk inter-dependence into account, in the case-study, the banks held a hedge position in foreign currency from the end of 1979 on and yet, they were bearing indirectly the risk ***derived*** from the foreign exchange exposure assumed by their depositors and borrowers in the private and public sectors. The same approach is used to judge the macro-economic consequences of the risks derived from the existence of a large fiscal deficit, and the way in which it was primarily financed; that is to say, via overseas funds. Besides the threat of the high exposure in foreign currency, economic agents experienced great uncertainty in relation to their future return on assets as, in the event that external financing was reduced or cut, the government would be forced to find these funds internally. The rationale for this worry was the manifest

incompatibility between the size of the public borrowing requirements and the financial depth of the economy: the total fiscal deficit represented two-thirds of the amount of credits granted by the financial system in the period July 1977 - March 1980[93].

All these elements suggest that the *general quality* of the country's financial structure was undergoing an acute deterioration and a more vulnerable financial system was resulting. In early 1980, the perceived risk on the part of the agents with regard to the banking system shifted drastically and the mounting financial fragility developed into a systemic risk. This marked the beginning of a process of financial disintegration[94]. The sequence of events was as follows: in early 1980 rumours about serious troubles in some financial institutions led individuals to begin withdrawing deposits. In the words of the Vice-president of the Central Bank, Alejandro Reynal, "a lot of gossip about debtors in trouble was circulating in the *city*" [95]. Then, on 28th March, the Central Bank decided to close the largest private bank of Argentina - *Banco de Intercambio Regional* (BIR). This had a strong negative impact on investors' confidence and triggered a run on the banks (black Wednesday 02-04-1980)[96]. A domino effect and the reshuffling of deposits spread the crisis. In the month of April, the three institutions which had suffered the largest drain on deposits were taken over: *Banco de Los Andes*, *Banco Oddone*, and *Banco Internacional* (thereafter, the first two were closed). In only five months, between February

[93] This, in turn, shows the importance of the external financing of the public deficit in the generation of the credit boom commented above.

[94] In the beginning of 1980s, banking crises also occurred in Chile and Uruguay where programmes of economic and financial liberalisation similar to the Argentine one had been applied. See, for instance, C. F. Díaz-Alejandro, "Good-bye Financial Repression, Hello Financial Crash", Journal of Development Economics, 1985, 19, 112, pp. 1-24; V. Corbo, J. De Melo and J. Tybout "What Went Wrong with the Recent Reforms in the Southern Cone", Economic Development and Cultural Change, April 1986, vol. 34, No. 3, A; F. Larrain "Financial Liberalization in Uruguay: Success or Failure?, CDP Discussion Paper Feb. 1987 No.1987-1; A. Velazco "Liberalization, Crisis, Intervention: The Chilean Financial System, 1975-1985", IMF Working Paper, 1988, WP/88/66;; and R. Zahler "Estrategias Financieras Latinoamericanas: La Experiencia del Cono Sur", Colección Estudios CIEPLAN Santiago, 1988, No. 23.

[95] Newspaper interview, Clarín, 24 January 1980, p. 8 (free translation from Spanish).

[96] A banking panic arises because the depositors fear that that the bank will *not* have the liquid funds in the event all of them decide to remove their money at the same time. Under the first-come-first-served rule, the depositors will try to avoid losses by *not* being at the end of the line if they think that other account holders intend to withdraw their funds. The first theoretical explanation of the deposit run was given by D. Diamond and P. Dybvig "Bank Runs, Liquidity and Deposit Insurance", Journal of Political Economy, 91, pp. 401-419. An alternative explanation based on asymmetric information is given by C. W. Calomiris and G. Gorton, "The Origins of Banking Panics: Models, Facts, and Bank Regulation", in R. G. Hubbard (ed.), Information, Capital Markets and Investment, National Bureau of Economic Research (1990), pp. 109-73.

and June, the decline in deposits in real terms amounted to US$ 3,190 million (2.6% of GDP).

What follows is an account of the economic interactions, the policy response and the main consequences for the financial system caused by the systemic failure. The main statistical support for this study is a series of 'snap shots' of the country's financial structure (financial matrix) per month between March 1980 and March 1981 included in the Appendix to Chapter IV. To begin with, the deposit run did provoke serious liquidity problems inside the financial sector and a large re-allocation of funds within the banking system from institutions suspected of being unsound to others considered to be more solvent. In particular, savings were taken out of banks which had expanded rapidly in a short period of time due to the policy of paying high nominal rates on deposits, to be re-deposited mainly in state-owned and in foreign-owned institutions. At that time, in a street interview, a random depositor, Juan Estevanel affirmed: "it is preferable to make deposits in well-established reputable banks, even though they pay lower rates of interest. Banks which grow overnight 'he said' cannot be trusted"[97] [98]. This explains why between March and June, the growth in nominal deposits for the financial system as a whole averaged a rate of 31% points. However, while deposits grew by 44% and 43% in State and foreign-owned banks, local private institutions accounted for only 16%[99].

In light of the scale of the deposit withdrawal, the monetary authority believed that the scheme of lender-of-last-resort in operation was insufficient to maintain the stability of banks and, therefore, a 'safety net' was established in April[100]. As a result of this decision,

---

[97] Clarín, Tuesday 1st April 1980, p.13 (free translation from Spanish).

[98] As explained in page 40, a bank's reputation is an intangible asset: the perception of the depositors regarding the soundness of the institution to which they are entrusting their savings. Any factor negatively affecting this perception can lead to a run on the bank.

[99] For a deeper analysis on the re-distribution of deposits and its effects on the Argentine financial crisis, see A. A. Arnaudo "Las Enseñanzas de la Crisis Financiera", Novedades Económicas, Córdoba, Argentina 1983 No. p. 30

[100] Circular R.F. No. 1051. Resolution issued by the Central Bank of Argentina offering financial assistance to deal with cases of temporary decline in deposits (*Adelantos para atender situaciones originadas en la reducción temporaria de depósitos*).

the Central Bank provided ordinary and extraordinary assistance, amounting to US$ 4,600 million (3.7% of GDP) between February and June. It should be highlighted that the interest charged on these loans was equivalent to one and a half times the discount rate; which means that for the banks these funds were much more expensive than the deposits they lost. In addition, the loans had to be paid off over a relatively short period in order to avoid a situation of non-compliance with the banking regulations[101].

The figures presented above show that the amount of rediscount loans granted by the Central Bank to banks was 30% greater than the total deposit withdrawals from the financial system during the period February - June. This means that the banking system had a net absorption of funds of US$ 1,400 million; equivalent to 3% of total lending to the private sector. Two factors help to explain this: one, the financial assistance given by the Central Bank covered the run on deposits of each bank. However, this amount surpassed the deposit loss of the banking system, since part of the deposits were re-allocated to other institutions and thereby, they did *not* go out of the system; and two, various institutions needed funds to deal with problems of liquidity and profitability caused by distress borrowing. As discussed earlier, there were banks which were concealing non-performing loans from the monetary authority by writing down unpaid interest as 'new' credit operations[102]. All this suggests that the Central Bank behaved counter-cyclically, and that the monetary policy cannot be blamed for an increase in the lending rate or a credit crunch, something which could deepen the crisis[103].

---

[101] Newspaper article by Adolfo Buscaglia, La Prensa, Monday 24, April 1980, pp. 10-11

[102] An account of the practice of "cooking the books" in the financial sector of Argentina commented on earlier was pointed out by A. J. de Juan, "The Root of Banking Crisis: Microeconomic Aspects and Supervision and Regulation'', in Banking Crisis in Latin America, 1996, pp. 95-116.

[103] Accordingly, the monetarist interpretation put forward by Milton Friedman suggesting that the origin and deepening of the Great Depression was due to the monetary restriction decided by the authority (The Federal Reserve System of United States of America) was *not* the cause of the Argentine financial crisis. M. Friedman and A J. Schwartz, A Monetary History of The United States, (1963). The argument that the Central Bank of Argentina behaved counter-cyclically is also shared by Roque Fernández, ''La Crisis Financiera Argentina: 1980-1982'', Desarrollo Económico, 1983, April - June, Vol. 2 No. 89 p. 79

Without doubt, these official loans were essential for keeping the banking system on its feet. It was achieved, however, at the expense of accelerating the process of capital flight which, in turn, reduced the external reserves of the Central Bank and helped to further raise the exchange rate risk. By trying to protect themselves against this higher risk, the banks changed the currency-denomination of some credits from pesos to dollars and this worsened the external exposure of their borrowers. In addition, the need to finance the fiscal deficit abroad and re-stock the international reserves in the Central Bank caused a notable increase in the external exposure of the public sector.

In an attempt to halt the deposit drain, the banks increased deposit and lending rates in nominal terms per year from 76% and 91% in March to 102% and 125% in July respectively. It should be stressed that the liquidity problem is the only explanation for the increase in interest rates since the inflation rate remained stable in this period[104]. With that inflation, the increase in the nominal deposit and lending rates meant a sharp increase in real terms which passed respectively from 12% and 43% to 22% and 59%. In turn, these changes entailed an increase in the margin of intermediation (real spread) from 10% to 16%. Furthermore, the banks decided *not* to re-lend all the funds obtained as loan-payments, generating a severe credit restriction for the private sector of US$ 1,650 million (1.8% of GDP) between April and June. At the same time, on the real side, the situation was *no* less troublesome: companies had been suffering an erosion of their profitability due to a general decline in the level of activity and strong competition from the exterior, in a scenario characterised by a high overvaluation of the exchange rate. The combined effect of the harder financial conditions imposed by banks and the poor business environment faced by the firms, aggravated the problems of distress borrowing and non-performing loans generating an amazing fall of 36% in the total financial worth of the banking system, from US$ 11,664 million to US$ 7,446 million, between March and July 1980 (see Appendix to Chapter IV).

[104] This hypothesis is fully confirmed by the estimations of the model of interest rate decision made in Chapter V.

As a result, it is highly probable that this sharp decline in banks 'net worth' had not only a once-and-for-all negative effect on the soundness of the banking system but also, on the subsequent behaviour of the banks regarding risk taking in credit allocation. Stiglitz and Greenwald pointed this out "when the 'net worth' of a bank falls below a critical level, the bank shifts from being risk averse to being a risk lover"[105]. This is a typical case of moral hazard in which, the bank has less capital (own funds) to lose and consequently, is less afraid of taking higher risks in investment decisions[106]. As argued by Lindgreen "as a banking system becomes unsound, normal relationships between policy instruments and targeted objectives become less predictable and may be perverse in some cases. This occurs because unsound banks that are less able to control their balance sheets are less sensitive to increases in their cost of funds and are more willing to accept risky borrowers who will pay higher rates, which discourages more creditworthy customers". In the case of Argentina, the general loss of credibility of banks caused by the crisis, made the flow of deposits more sensitive to real and monetary shocks. This helps to explain how the deposit run (a monetary shock) spread throughout the banking system generating an ***extra*** increase in the risk exposure of the different economic agents and consequently, in the degree of the country's financial fragility.

Besides bank closures and the assistance given to institutions with liquidity problems, the authorities adopted other emergency polices. These included the extension of the deposit insurance granting a full guarantee for funds up to $ 100 million of 1980 (US$ 58,000). The scheme was made retroactive to 18th November 1979, the date when the scheme of deposit guarantee instituted in June 1977 was changed[107]. In the same vein, the reserve requirements of banks were increased to try and absorb the monetary expansion[108]. In addition, in July 1980, the restriction of a minimum period of one year

[105] J. E. Stiglitz and B. Greenwald, Op. Cit., p. 213.
[106] C-J Lindgren, G. Garcia and M. I. Saal (eds), Op. Cit., p. 69.
[107] See above section 3.
[108] This can be seen as a reversal of the policy based on the neo-classical prescription of minimising government intervention in financial markets.

for the inflow of foreign capital was eliminated, and short-term capital was welcomed.

These measures contributed to ending the runs on banks and capital flight. Following a temporary decline, the monetary variables began a rapid recovery from mid-year on. Five months after the closure of the BIR, liquidity in the financial system was re-established and the amount of deposits and credits were above March 1980 levels in real terms. These elements led the government to believe that the crisis had ended. In the words of the President of the Central Bank, "the deposit run was over by mid-year, and the banking system was again operating normally by September"[109].

However, in a scenario of highly sensitive markets, the economic risks derived from the large fiscal and external disequilibria plus the deep economic recession continued to increase the vulnerability of the macro-financial structure over the second half of 1980. By October, deposit growth had stagnated, and the difficulties in banks had re-appeared. This time, it was becoming evident that the banking system had structural problems, and that the liquidity assistance given by the Central Bank had done no more than 'paper over the cracks'. As pointed out by Aristobolo de Juan, a long period of liquidity difficulties is always a reflection of the fact the banks have more deeply-rooted problems[110]. In effect, in the case of Argentina, this was confirmed by the Treasury Secretary Juan Alemann: "if the banks wrote off all the non-performing loans on their books, several of them would be in the red"[111]. To cope with this problem, the government introduced an extensive debt-rescheduling plan and refinanced US$ 6,500 million (around 4.5% of GDP) between November 1980 and December 1981, equivalent to 12% of the stock of banking credits of March 1980 and 15% of the lending given to the private sector. These funds, however, proved ineffective at stopping an unprecedented banking crisis. During the two years after the liquidation of the BIR, 70 institutions closed

[109] Banco Central. La Experiencia de los Años Ochenta, Valores en la Sociedad Industrial, Sept. 1994, Año XII No. 30, p. 123 (free translation from Spanish).
[110] A. J. de Juan, Op. Cit.,1996, p. 105
[111] Newspaper interview, Clarín, 4 December 1980, p.10.

their doors accounting for 16% of the total assets of the banking system, and the Central Bank had to increase the amount of lending to the financial system by 19% of GDP[112]. As a result of this, the 'direct' fiscal loss alone amounted to approximately 15% of GDP and this crisis contributed to an accumulated fall of 12% in GDP over the period 1980-81.

[112] V. Sundararajan and T.J.T Baliño, "Issues in Recent Banking Crisis in Developing Countries", IMF Working Paper, March 1990, p. 36

## IV.6 CONCLUSIONS

The Argentine financial system underwent a remarkable transformation over the period 1977-81. Departing from a state of high financial repression, the liberalisation of capital markets in line with McKinnon and Shaw's theory brought about an extraordinary financial expansion up to early 1980. In these years, financial activities flourished - deposits and credits grew at a fast pace - generating a positive effect on economic activity. At the same time, however, the *quality-features* of the whole financial structure of Argentina were deteriorating. This was the result of the flawed design of the institutional change and other policy reforms, based on a *narrow* theory of financial markets and bank behaviour. Indeed, the government believed that *all* that was needed to obtain a deep and sound financial system was to guarantee competition and a free market determination of interest rates, without paying attention to the risks that the banks and their clients were assuming. In other words, for the neo-classical approach adopted, what matters is the quantity but *not* the quality of the financial system. This helps to explain the several shortcomings of the liberalisation attempt. One, by trying to promote competition, many players were allowed to enter the financial markets, taking into consideration only the requirements of capital but *not* their knowledge, experience, reputation and honesty. Two, the monetary, banking, fiscal and exchange rate policies generated a 'credit boom'. This, in turn, relaxed the banks' standards for screening and selecting projects and borrowers, negatively affecting the 'quality' of resource allocation. Three, although there is strong evidence of the high levels of risk which the banks were assuming - high spread, lending and profit rates - the Central Bank did *not* establish any *constraints* on risk taken *nor incentives* for risk adjustments for capital standards. Four, in a context of high inflation and uncertainty, the authority tried to make deposits in banks more attractive by reducing the minimum period for time deposits to 7 days. However, *no* importance was given to the higher liquidity risk which the banks had to assume as a result of a greater mismatch between assets and liabilities. Five, by opening the economy to the international capital markets, the government encouraged external indebtedness with *no* limit on the foreign exchange exposure of banks and their borrowers (private and public sectors), and with *no* minimum

period for bank deposits of overseas capital. This shows the lack of importance given by the government to the growing risk of devaluation and its implications for the banking system, regarding the stability of deposits and the solvency of the banks' borrowers. Finally, the financial system was also badly affected by important cases of misbehaviour, fraud and corruption as a result of a faulty institutional framework - bad regulation and poor banking supervision - as well as cronyism inside the Central Bank where, on various occasions, the regulations were ignored, bent or modified so as to benefit some financial intermediaries.

The general worsening of the quality of the macro-financial structure had been steadily raising the country's levels of financial fragility until March 1980, when it finally cracked. With the collapse of the BIR, the perceived risk of individuals increased sharply and the state of financial fragility changed to one of systemic risk. This marked the end of the process of financial deepening and the beginning of a process of financial disintegration. The first manifestations of the macro-financial disorder were the deposit runs and capital flight, which aggravated the liquidity problems and threatened the stability of the banking system as well as the foreign exchange rate scheme. Five months later, and after huge monetary assistance given by the Central Bank, the banking crisis appeared to be over, since the deposits and credits had returned to their pre-crisis levels. However, what had been done was no more than emergency first aid in order to overcome the liquidity crisis, the infection ran much deeper: the solvency of the whole banking system had already been seriously compromised.

This chapter shows that the high and growing strain that the policy reform imposed on the Argentine financial structure made a banking crisis inevitable.

# CHAPTER V

# BANKING BEHAVIOUR, ASYMMETRIC INFORMATION AND INFLATION

## V.1 INTRODUCTION

This Chapter focuses on the behaviour of financial intermediaries throughout the period of financial liberalisation, 1977-81. Banks operate in both the markets of assets and liabilities and they, therefore, bear simultaneously liquidity, interest rate and credit risks. The magnitude of these risks depends on the creditworthiness of borrowers and on the degree of mismatching between assets and liabilities in connection with the interest rates, maturity and currency. In an ideal and perfectly matched position, a bank faces *no* financial risk. However, the absence of mismatching is *not* usually seen as desirable since it would yield a low or, possibly, no return at all.

A financial middleman who has a completely matched portfolio position is called a 'broker'. His only *raison d' être* is the reduction of search costs by bringing together complementary transactors. This study deals only with asset-transformers, that is to say, agents who are assuming a position of risk. No bank can expect to be always right in its predictions of cash-flows, interest rates, prices, exchange rate movements and loan repayment. Thus, the challenge confronting any bank is not to avoid risk but to manage it in order to sustain an appropriate level of short term liquidity and long term profitability. Hence, the main goal of this Chapter is to assess the attitude of banks towards these risks. This requires the evaluation of how the intermediaries dealt with the risk associated with interest rate decisions in the uncertain macro-economic scenario which prevailed in Argentina in the period 1977-81 and the impact these rates had on the default risk of banking clients. By the same token, the policy for procuring deposits and allocating credits will be considered in connection with the liquidity, interest rate and solvency risks.

In the analysis, special attention is paid to the evolution of the financial spread: the difference between the interest revenues on bank's assets and interest expense on bank's liabilities as a percentage of its total assets. Since this mark-up is a key factor in the performance of a financial institution in connection with *liquidity*, *efficiency* and

*solvency*, a great deal of effort has been devoted to understanding how they priced loans and deposits in an inflationary economy with free interest rate determination; and what effects the pricing criteria had on the interest rate and on the credit risk positions of the banks.

The present analysis starts with the financial intermediaries as an aggregate. Then, a more dis-aggregated study is undertaken in order to identify the degree of homogeneity in the behaviour of the banks. This point is crucial since the approach towards risk may differ among the intermediaries. Moreover, variations in the risk position over time of one bank can imply changes in the distribution of risk for the financial sector as a whole. All these elements will be taken into account so as to identify cases of *excessive* risk taking and *speculative* behaviour by banks as well as their effects on the aggregate financial system between 1977 and 1981. The identification of these factors and their consequences constitutes an important contribution to understanding the root causes of the Argentine financial collapse of 1980-81.

The remainder of the Chapter is as follows: the second section considers the problems of information in connection with market prices, and the role of expectations in an inflationary economy. Section three shows the evolution of the deposit and lending rates and of the financial spread during the period of free market operation, 1977-81. Particular attention is paid to the analysis of the components and determinants of the margin of financial intermediation. In an attempt to rationalise the pricing policy of the financial agents of those years, section four presents a model of interest rate decisions in a highly inflationary economy. In section five, the topic of liquidity management is considered so as to identify deviations in the behaviour of some intermediaries from that of the aggregate banking sector. Finally, section six explores cases of excessive risk taking and speculative behaviour within the banking sector. The conclusions are summarised in section seven.

## V.2 ASYMMETRIC INFORMATION, INFLATION AND FINANCIAL MARKETS

The purpose of this section is two fold: one, it attacks the bases of the neo-classical paradigm with regard to the informational role of the price mechanism and market efficiency; and two, it helps to frame the analysis around the issue of price decisions which economic agents make in an inflationary scenario like that of Argentina over the period 1977-81.

Long ago Kenneth Arrow and Gerard Debreu claimed that, under several restrictive assumptions, market prices - in general - lead to an efficient allocation of resources and coordination of individuals' decisions[1]. In theory, market prices transmit all the relevant information to the public domain and consequently, no incentives exist to invest resources in generating and acquiring information[2]. Reality, however, departs from this idealised neo-classical formulation. Among other factors, the informational efficiency of the market economy is hampered by the lack of a complete set of markets extending infinitely into the future[3]. Without contingent or futures markets, economic agents face a world of *uncertainty*[4]. This suggests that all the information which helps to improve the prediction of the future has economic value and consequently, it is bound to be costly[5].

By the same token, the efficiency of market prices is also challenged in the event of market imbalance. Theoretically, with the emergence of an excess demand (supply),

---

[1] J. K. Arrow and G. Debreu, "Existence of an equilibrium for a competitive economy", Econometrica, 1954, No. 22 pp. 265-290

[2] J. K. Arrow, "An extension of the basic theorem of classical economics". Proceeding of the Second Berkeley Symposium on Mathematical Studies and Probabilities, J. Neyman (ed.), 1951, pp. 507-532; G, Debreu The Theory of Value, 1959

[3] See, for instance, S. J. Grossman and J. E. Stiglitz, "Information and competitive price systems", American Economic Review, 1986, No. 66, pp. 246-53 and; J. E. Stiglitz, Whither Socialism?, 1994, Chapters 1, 2 and 3, pp. 1-44

[4] Here, there is no distinction between the concepts of 'risk' and 'uncertainty' as proposed by Knight. F. H. Knight Risk, Uncertainty and Profit, 1921

[5] See for instance, S. J. Grossman "An introduction to the theory of rational expectations under asymmetric information", The Review of Economic Studies, 1981, No.48, pp. 541-559; A. Cukierman, Inflation, Stagflation, Relative Prices and Imperfect Information, (Cambridge 1984), pp. 23-34; S. J. Grossman and J. E. Stiglitz, "On the impossibility of informationally efficient markets", American Economic Review, 1980, No. 70, pp. 393-408 and J. E. Stiglitz, Op. Cit., 1994, Chapter 6, pp. 83-107

market prices will theoretically increase (decrease) until the equilibrium is ultimately restored. In a perfectly competitive economy, however, no endogenous mechanisms exists that move the market forces towards a new market equilibrium. In effect, with price-takers, there is a lack of market forces which start a dynamic process of price and quantitative adjustment leading to a new equilibrium position[6]. The adjustment of an excess supply and demand is then a process where the economic agents decide and fix prices. In reality, there is no such thing as a perfectly competitive market. With price-setter agents and an incomplete set of future markets, the informational character of market prices is substituted by the *conjectures* of agents regarding prices, quantities and qualities of the goods and services that will be bought and sold.

An important conclusion can be drawn from the above discussion: *not* only does the efficiency of an economic unit depend on its productive side but also on the accuracy of its predictions. This becomes even more important with inflation: a circumstance where the general level of prices rises due to an aggregate macro-economic disadjustment, for instance, fiscal deficit. Inflation may affect the real value of nominal variables such as wages, prices, return on assets, stock of money, net worth, and so on. This explains why everybody looks at variables in real terms, yet most of the time one can only manage prices in nominal terms. In an inflationary scenario, therefore, *expectation* about price changes becomes crucial for the economic performance of every agent.

Several factors account for the formation of individuals' expectations of inflation such as their own experience, past and new information about the macro-economic environment and market conditions as well as their attitude towards risk. Within the first two, the aspects taken into account are the magnitude of both the 'aggregate' economic disequilibrium (inflation) and, that of the 'relative' market imbalance (supply-demand) where the agent operates. It should be highlighted that these two disequilibria are inter-related phenomena: the former can generate an *ex-post* market imbalance if

[6] This was first pointed out by Arrow. See J. K. Arrow "Toward a Theory of Price Adjustment", in The Allocation of Economic Resources, 1959

suppliers and demanders do not coincide in their expectations of inflation. Likewise, disequilibrium in a single market can cause price re-accommodations which might not be totally counterbalanced by price movements in other markets and thus, the general level of prices (inflation) on average will be altered.

This interrelated aggregate-relative imbalance contributes to the explanation of the existence of a positive correlation between the level of inflation and the volatility of relative market prices[7]. Indeed, it is commonly noticed that the higher the rate of inflation, the deeper and more frequent the relative price adjustments will be. Without a rapid flow of information circulating among the markets, the conjecture about the rate of inflation differs among individuals who operate in different markets. This is so, as everybody estimates inflation taking into account mainly what is happening in their own sector (sectorial inflation); without considering that market prices are subject to specific and general market supply and demand shocks. Accordingly, individuals operating in different markets come up with different estimates of the current and future inflation rates and this, in turn, has a knock-on effect on the demand-supply position of different markets.

Another manifestation of the price interaction commented on above is the positive correlation between the 'mean' and the 'variance' of inflation. A typical pattern shows that the inflation rate becomes more unstable when price increases are higher. Volatility, however, does not necessarily mean unpredictability. The latter depends on the accuracy of the inflation forecast. This means that an estimation of the inflation uncertainty is given by the variance of the forecast error: the deviation of individuals' expectations from the effective rate of inflation. In the same vein, as the errors of prediction are usually greater when the instability in the general level of prices is higher, the variance of inflation is commonly taken as a proxy of the above measure of inflation uncertainty (variance of the forecast error).

[7] This was explained in depth by A. Cukierman, Op. Cit., 1984, Chapter 4, pp. 53-68

So far, it has been shown that informational problems of market prices are pervasive in the economy and also that agents use private information when they decide prices. Besides the economic troubles derived from imperfect or incomplete information, there are others which arise due to asymmetric information and knowledge among the agents. Chapter VI will demonstrate that individuals can make use of their informational advantage for their own benefit. As stressed by Stiglitz, with asymmetric information, what is involved in an economic transaction is not only the mutual benefit of buyers (borrowers) and sellers (lenders) but also, the possibility that one party could be cheating the other[8].

Informational problems related to the allocation of capital and the monitoring of its use are what make financial markets 'special'. This has been correctly pointed out by Diaz-Alejandro: "a butcher will seldom turn down a customer who wants to buy with cash everything in sight at the price announced by the butcher (he will just make sure the cash is not counterfeit), a bank will surely *(sic)* not lend all a customer wants to borrow at the going interest rate. The former is a spot transaction; the latter involves a promise to repay in the future which may or may not be sincere or wholly credible. Enforcing the loan contract or liquidating collateral property will involve costs, and even with speedy enforcement the bank may be unable to get all its money back. The bank will incur costs to explore the credit worthiness of borrowers (transaction costs); the butcher will not care much about the reputation of cash-carrying customers''[9].

Hidden information and hidden action because of asymmetric information are at the root of the problems of adverse selection, incentive effects, monitoring, transaction costs and moral hazard[10]. In capital markets, these effects may have different consequences including, a significant drop in lending which, in turn, could result in a decline in investment and economic activity; or alternatively, an excess of loans

[8] J. E. Stiglitz, Op. Cit., 1994, p. 35
[9] C. F. Díaz-Alejandro "Good-bye Financial Repression, Hello Financial Crash", Journal of Development Economics, 1985, No. 19, 112:1-24, p. 2
[10] For further details of the consequences of asymmetric information in financial markets see Chapter II, Section 2; as well as the bibliography cited therein.

granted to risky borrowers and allocated to risky projects, which could have an impact upon the fragility of the aggregate financial structure. All these problems are likely to be exacerbated in an inflationary scenario with high volatility in both absolute and relative prices.

The interaction between inflation and asymmetric information is an obvious result, yet surprisingly, few theoretical and empirical works exist on this topic[11]. The originality of the present study can be encapsulated as: information problems make financial markets 'special'; and inflation causes 'special' problems of economic information. What happened in Argentina in the period 1977-81 is a perfect illustration of how an inflationary macro-economic environment led to a greater degree of asymmetric information in financial markets which, in turn, seriously affected economic efficiency as a whole. What follows is an attempt to explain this phenomenon.

[11] Within these contributions are A. Cukierman, Op. Cit., 1984, pp. 15-124 and; R. I. McKinnon, "Financial Liberalization and Economic Development: A Reassessment of Interest-Rate Policies in Asia and Latin America", Oxford Review of Economic Policy, 1989, Vol. 6, No. 4, pp. 45-67

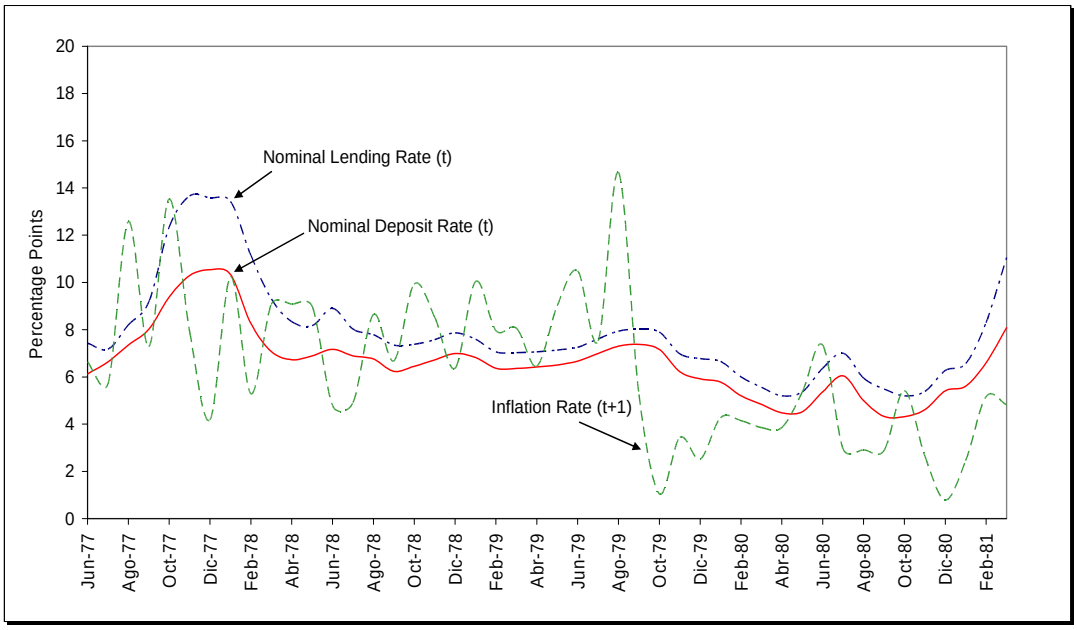
## V.3 INTEREST RATES AND FINANCIAL SPREADS IN ARGENTINA, 1977-81

This section is dedicated to an analysis of the evolution of interest rates and the margin of financial intermediation throughout the period of free market operation. At that time, the month was the relevant period in the Argentine banking system since the bulk of individuals' decisions to allocate resources in the financial system were made on the basis of a term-maturity of thirty days. Graph V.1 shows the rate of inflation per month measured by the variation of the Wholesale Price Index (WPI); and the deposit and lending rates in nominal terms for thirty days between June 1977 and March 1981.

Graph V.1

Inflation, Deposit and Lending Rates in Nominal Terms, 1977-81

(Monthly rates)




Source: based on data of the Central Bank of Argentina, Boletín Estadístico, BCRA several monthly issues, 1977-81.

The liberalisation of financial markets implemented in an economic scenario characterised by a rate of inflation of between 5% and 12% per month, brought about an extraordinary increase in the nominal rates of interest. As Graph VI.1 shows, during the first and second halves of 1977, the deposit and lending rates jumped from about 3% and 4% to 8.7% and

10.7% per month respectively. Thereafter, an important drop in the nominal deposit and lending rates is observed throughout 1978, followed by a moderate decline in the first half of 1979 to 6.4% and 7.1%. This was due to an increase in the money supply, as a result of a less restrictive monetary policy applied by the monetary authority and, of a large inflow of foreign funds[12]. This downward trend was reversed briefly between July and November 1979 and then, these rates continued declining in nominal terms until mid-1980 (Graph V.1). However, in real terms, the rates of interest increased sharply from the third quarter of 1979 and; thereafter, during the first quarter of 1980, the real deposit and lending rates reached 1.1% and 1.9% per month respectively[13]. As can be seen in the graph above, although high nominal rates prevailed over these years, the depositors were roughly compensated for inflation. That was not the case of the lending rate, which - *ex-post* - was *not* only positive in real terms, but also resulted in very high levels on average[14]. Between July 1977 and March 1981, the rate paid by the banks on deposits averaged in real terms 0.28% per month (3% per annum) and the lending cost averaged 1.4% and 2.1% (18% and 27% annum) for first and second class companies respectively[15]. Another point that should be stressed is that these real returns differed markedly before and after mid-1979. In the first sub-period, July 1977 - August 1979, the real deposit and lending rates were -0.86% and 0.42% per month (-9.9% and 5% per annum) and, in the second sub-period, Sept. 1979 - March 1981, these rates averaged 1.8% and 2.8% per month respectively (24.5% and 39.6 per annum)[16].

---

[12] For more details of this monetary policy, see Chapter III, Section 3

[13] Interest rates in real terms were estimated by the author based on the data presented in Graph V.1

[14] The subject of the high lending rates in real terms following the liberalisation of the financial markets in 1977 has been studied by several authors, including: T. J. T. Baliño "The Argentine Banking Crisis of 1980", IMF Working Paper, November 1987, No. 87/77;J. M. Dagnino Pastore "Las Tasas de Interés Bajo Distintos Contextos Cambiarios y Financieros", Desarrollo Económico, April-June 1987, 27 (105) pp. 61-85; C.F. Díaz-Alejandro, Op. Cit., 1985, p. 1-24; R. Frenkel "Mercado financiero, Expectativas Cambiarias y Movimientos de Capitales", El Trimestre Económico, 1983, No. 200. pp. 2041-76; L. Leiderman and M. Blejer "The Term Structure of Interest Rates During a Financial Reform: Argentina 1977-81, Journal of Development Economics, April 1987, No. 25 (2) pp. 285-299; R. I. McKinnon, Op. Cit., 1989

[15] The lending rates for the second class companies were taken from Clarín, Economic Section, Thursday 23, July 1981, p. 12

[16] Own calculation based on data depicted in Graph V.1

A high degree of volatility is also observed from the beginning of the new financial regime in both nominal and real rates of interest[17]. As the variability of the inflation rate over these years was even greater, the volatility noticed in the real returns surpassed markedly that of the nominal rates. Measured by the coefficient of variation, the real deposit and lending rates exhibited a variability of 1.94 and 1.14 respectively; yet in nominal terms, these returns showed a volatility of 1 and 0.94.

All this suggests that individuals were making greater mistakes forecasting the inflation rate when this became higher and thus, more unstable[18]. In effect, negative rates on deposits may have been due to the difference between the *ex-ante* and *ex-post* rates of inflation. By considering the high price variability, errors of prediction in connection with the rate of inflation may account for differences between the 'planned' and the 'actual' rates on deposits in real terms as argued in the last Section[19]. These negative rates were also the result of the lack of alternatives to bank deposits to which people could allocate their funds[20.] However, the persistence of the extraordinary high levels reached by the lending rates in real terms can hardly be attributed to a defective inflationary estimation and hence, the factors which led the banks to price their loans at these rates is a point which merits further investigation[21].

In a scenario of high and variable real rates of interest, the re-distribution effects inside the financial system increased *pari-passu* with the variance of the inflation rate[22]. This is shown by the evolution of the margin of financial intermediation. Table VI.1 presents the

[17] This point was stressed by Leiderman and Blejer "The Term Structure of Interest Rates During a Financial Reform: Argentina 1977-81, Journal of Development Economics, April 1987, No. 25 (2) pp. 285-299.
[18] As stated in Section 2, the variability of the inflation rate is usually higher when the level of inflation is higher.
[19] This view is shared by A. A. Arnaudo "Expectativas Inflacionarias en Argentina. Una Interpretación, Documento de Trabajo, Instituto Torcuato Di Tella, August 1980.
[20] Over these years, the stock market of Argentina was shallow and from Dec. 1978 on, the exchange rate was fixed following a pre-announced crawling peg. For more information see Chapter III, Section 3 and the bibliography cited therein.
[21] This is done in Sections V.4 and V.5
[22] A thorough analysis of the effect of inflation on individuals' predictions is given by A. Cukierman, Op. Cit., 1984, pp. 23-34

annual rate of spread in nominal and real terms deflated by the CPI and the WPI for the period 1976-81.

Table V.1

Financial Spread in Nominal and Real Terms, 1976-81

(Annual rates)

| Year | Financial Spread | | |
|---|---|---|---|
| | Nominal | Deflated by CPI | Deflated by WPI |
| 1976 | 13.89 | 3.09 | 4.40 |
| 1977- I semester | 15.34 | 7.96 | 8.17 |
| 1977- II semester | 73.55 | 27.50 | 30.25 |
| 1978 | 46.48 | 17.43 | 19.62 |
| 1979 | 17.57 | 8.00 | 8.74 |
| 1980 | 19.08 | 10.83 | 12.74 |
| 1981 | 55.36 | 25.74 | 21.89 |

Source: Central Bank of Argentina, Boletín Estadístico, several monthly issues, 1976-81.

To begin with, a huge transfer of resources happened within the financial system in this period, given the notable differences between the returns on deposits *vis-à-vis* those on credits. Whereas the depositors received negative or slightly positive real returns, the production sector suffered from extremely high lending rates in real terms on average[23]. Additionally, although the nominal rates on deposits and on loans exhibited a similar pattern, the gap between them did not remain constant throughout that period. Consequently, large and variable rates of intermediation spreads in both nominal and real terms emerged as another distinctive feature of the financial liberalisation attempt of 1977[24]. Table V.1 demonstrates that in the period 1977-81, the margin of intermediation charged by the banks averaged an astonishing 19% per annum in real terms. This is even more striking when one recalls that aggregate output fell by 0.2% and industrial production dropped by 2.5% on average during this period[25]. The result of this experience was neatly chronicled by a national newspaper: “there is no doubt that the high level and

[23] This point was stressed by E. Gaba, “La Reforma Financiera Argentina: lecciones de una experiencia”, Ensayos Económicos, September 1981, No.19, pp.1-33

[24] Ibid., pp. 21-33

[25] For a detailed analysis of the economic cycle during 1977-81, see Chapter III and Chapter V; and the bibliography mentioned therein.

the volatility of the interest rates affected business activity and the financial structure of companies. Indeed, it should be highlighted that after a long period in which the real rate of interest became positive and continued growing, economic activity declined in the last quarter of 1979 and continued to do so during the first quarter of 1980. Additionally, changes in the interest rates brought about serious financial difficulties for many enterprises"[26]. Why did the financial intermediaries charge these high lending rates in real terms which resulted in such a large margin of intermediation in the financial system? What was the role played by the banks in the transmission of systemic shocks and macro-economic imbalances? Did all the banks behave in a similar manner and what were the consequences of their behaviour for the aggregate financial structure? These are important questions which will be addressed in this study.

In a scenario with asymmetric information, transaction costs regarding the negotiation, monitoring and enforcement of contracts are the best explanation for the existence of financial intermediaries and thus, of banking spreads: the difference between lending and deposit rates[27]. This is equivalent to the financial intermediation margin - the difference between interest revenues on assets and interest expenses on liabilities - as a proportion of total banking assets. The objective of this subsection is to identify the elements which constitute the financial spread and to quantify their importance in the levels which prevailed in Argentina in 1977-81.

The financial intermediation spread is made up of: one, the net cost of reserves per unit of deposit and; two, the gross financial yield charged by the banks. The net cost of reserves is associated with the minimum reserve requirements set by the Central Bank and the amount of reserves over and above held by each institution. While the former is intended to regulate the stock of monetary resources and to maintain some degree of liquidity in

[26] Newspaper report, Clarín, Loc. Cit., July 1981, p. 12

[27] This financial view is discussed in G. Benston and C. W. Smith, "A transaction cost approach to the theory of financial intermediation", Journal of Finance, 1976, No. 31, pp. 215-31; D. Diamond, "Financial intermediation a and delegating monitoring", Review of Economics Studies, 1984 No. 51, pp. 393-414; H. E. Leland and D. H. Pyle, "Informational asymmetries, financial structure and financial intermediation", The Journal of Finance, 1977, 32, pp. 371-87

the financial system, the latter is the amount of liquidity deemed necessary by the financial institution[28]. Whenever there are banking reserves, an opportunity cost of not using them in other ways arises. However, there are cases in which part or all of the banking reserves are remunerated - as happened with the *Cuenta de Regulación Monetaria* - and naturally, this income has to be taken into account in order to obtain the net cost of reserve requirements. The factors described below affect the cost of banking reserves.

a. Excess Reserves*:* the minimum reserve requirements were computed monthly as an average of the balance position held by an institution per day[29]. Within a particular calendar month, a financial agent could have an excess or shortage of banking reserves, which had to be averaged to meet the rate required by the Central Bank. Following the financial reform of 1977, the cost of having excess reserves was very high due to: one, the lack of expertise on the part of the financial agents in using the assets optimally in a scenario of high and variable inflation; and two, the legal reserve position at the end of the month was very hard to predict due to the large variability in the stock of monetary resources available in the economy, which affected the lending capacity of the financial institution throughout the month. The way in which the reserve requirements of the Central Bank were calculated caused intermediaries to bear a substantial cost for holding funds which exceeded the requirements of the monetary authority.

b. Monetary Regulatory Account - *Cuenta de Regulación Monetaria* (CRM)*:* as commented in Chapter IV, a high requirement of reserves was devised to curb the monetary expansion as a result of the institutional reform of mid-1977. However, a substantial immobilisation of assets in the financial system would have implied a large interest rate differential. The authority attempted to prevent this by means of the CRM. The CRM was a mechanism through which an inflationary tax levied on deposits in current accounts was transferred to the Central Bank, which, in turn, helped to pay

[28] For an assessment of the liquidity management by the financial intermediaries, see below Section V.5
[29] For more details on this topic see Chapter IV, Section 3

interest on banking reserves. The CRM impacted on the gross financial yield per unit of deposit in both interest ($gfy_i$) and non-interest bearing deposits ($gfy_d$) as follows:

(1) $gfy_d = i_l\ (1 - r\ ) - i_{ch}\ (1 - r - \delta)$

(2) $gfy_i = i_l\ (1 - r\ ) - i_d$

where:
$i_l$ = nominal lending rate.
$i_d$ = nominal deposit rate.
$i_{ch}$ = rate charged on lending capacity in current account.
$i_{co}$ = compensation rate on minimum reserve requirements accounted on interest bearing deposits.
$r$ = rate of legal reserve requirements.
$\delta$ = margin on free lending capacity in current account.

The gross financial yield - per unit of deposit - of both interest and non-interest bearing deposits are equal if the following conditions hold: one, the Central Bank charges and pays the same rate; and two, the margin on free lending capacity in current account is zero. Therefore,

(3) $gfy_i = gfy_d = (i_l - i_d) * (1 - r)$

c. Distribution of Deposits: expression (4) means that - per unit of deposit - the Central Bank charges on the lending capacity of demand deposits what it pays for the legal reserve requirements on interest-bearing deposits. Nonetheless, the net result of the CRM per unit of total deposits ($crm_{dt}$) depends not only on the rate of 'payments and charges' but also, on the distribution of types of deposits within the financial system as well. The distribution of deposits is the basis on which the 'charges and payments' are calculated. Accordingly, the lower the proportion of demand deposits, the higher the interest rate differential will be.

(4) $crm_{dt} = i_{ch}\ (1 - r - \delta)\ (dd/\ td) - i_{co} * r\ (ibd/\ td)$

where:
dd = stock of demand deposits.
ibd = stock of interest bearing deposits.
td = stock of total deposits.

The CRM is in equilibrium if the following conditions hold: (i) the return per unit of deposit on the demand and interest bearing deposits are equal (expression 3) and; (ii) the ratio of demand deposits over interest bearing deposits is equal to the ratio of the coefficient of reserve requirements over the coefficient of the total lending capacity of the financial system. By making $crm_{dt} = 0$, expression (5) is obtained.

(5) $dd / ibd = r / (1- r)$

In mid-1977, neither of the two conditions needed to achieve equilibrium in the CRM were being met. To begin with, the return per unit of deposit on demand deposits was higher than that on interest bearing deposits as the margin on free lending capacity in current account ($\delta$) had a positive value (see expression 3). In addition, the second condition (expression 5) did not hold as the coefficient of reserve requirements was 0.45, while the ratio demand deposits/interest-bearing deposits reached 0.59. Consequently, the CRM showed a large deficit at the beginning of the new financial regime which, in turn, led to large monetary expansion as shown in Chapter IV[30]. Therefore, the result of the 'equalisation fund' depended on the following factors: (i) individuals' behaviour regarding the distribution of deposits in the financial system; and (ii) the monetary policy through modifications in the coefficient of minimum reserve requirements.

[30] The sources of monetary expansion in the period 1977-81 are discussed in Chapter IV, Section 3.

d. Gross Financial Yield: this consists of the operating costs of the bank plus the profit margin per unit of deposit[31]. The gross financial yield - per unit of deposit - of a bank can be written as follows:

$$(6) \qquad gfy = i_l (1 - r - r_e) + i_{co} * r (ibd/ td) - i_{ch} (1 - r - \delta) (dd/ td) - i_d (ibd/ td)$$

where:

gfy = gross financial yield.
$r_e$ = excess reserves.

The differential between deposit and lending rates can be obtained from the expression (6). That is,

$$(7) \qquad i_l - i_d = gfy + (i_l - i_{co}) r + i_l * r_e + [ i_l (1 - r - \delta) - (i_d - i_{ch} * r)] (dd/ td)$$

Expression (7) shows the interest rate differential in nominal terms that prevailed in the financial system at the end of a period. However, what matters is the real value of the financial spread. It is obtained by dividing expression (7) by the nominal lending rate.

$$(8) \qquad (i_l - i_d) /(1+ i_l) = gfy/ (1+ i_l) + r (i_l - i_{co}) / (1+ i_l) + i_l * r_e / (1+ i_l) +1/ (1+ i_l) [ i_l (1- r- \delta) - (i_d - i_{ch}* r)] (dd/ td)$$

Expression (8) breaks down the interest rate differential into gross financial yield and the cost of reserve requirements, deposit composition and excess of banking reserves. It should be pointed out that modifications in the cost of reserves may not necessarily be reflected in the interest rate differential, as they can be partially or fully absorbed by an opposite change in the gross financial yield. Table VI.2 shows the determinants of the

[31] Within these costs, the following taxes on banks' activities were included: (a) a sales tax of 4.1% on the gross financial yield; and (b) 2% on total banking loans, a contribution to the *Instituto Sociales Bancarios* (an institution which belongs to the banking sector trade union).

interest rate differential per semester - on average - between the second half of 1977 and the first half of 1981. (Appendix A to Chapter V presents these figures on a monthly base).

Table V.2

Determinants of the Financial Spread, 1977-81

(Monthly rates)

| Year/Sem. | Financial Spread | Gross Fcial. Yield | Minimum Reserve Cost | Free Reserves | Deposit Composition |
|---|---|---|---|---|---|
| 1977-II | 1.767 | 0.879 | 1.191 | 0.155 | -0.459 |
| 1978-I | 1.934 | 1.044 | 0.963 | 0.131 | -0.204 |
| 1978-II | 0.919 | 0.663 | 0.271 | 0.042 | -0.057 |
| 1979-I | 0.620 | 0.505 | 0.144 | 0.054 | -0.084 |
| 1979-II | 0.662 | 0.577 | 0.095 | 0.036 | -0.046 |
| 1980-I | 0.779 | 0.741 | 0.085 | 0.035 | -0.082 |
| 1980-II | 0.880 | 0.856 | 0.086 | 0.033 | -0.095 |
| 1981-I | 1.774 | 1.692 | 0.280 | 0.043 | -0.241 |

Source: based on data of the Central Bank of Argentina, Boletín Estadístico, BCRA several monthly issues, 1977-81.

The above factors contributed to the high level of financial spreads in real terms that prevailed between July 1977 and June 1981. In the first year of the new financial regime, high minimum reserve requirements together with the increased profitability of the financial intermediaries (gross financial yield) helps to explain - to a large extent - these interest rate differentials. Thereafter, an important decline in the rate of financial spread is noticed in the second half of 1978, followed by another in the first semester of 1979. That was a result of the reduction in the total cost of reserves and in the gross financial return per unit of deposit. The cost of reserves declined due to a lower coefficient of minimum reserve requirements and a more efficient use of their lending capacity by the banks[32]. The total cost of reserves continued to drop until the end of 1980, but that effect was more than counterbalanced by an increase in the gross financial yield and, therefore, the financial spread began to move upwards from the second half of 1979 (Table VI.2). It should be stressed that the increase in the rate of mark-up 'coincided' with an increase in the lending rate in real terms, which the banks charged. In the first half of 1981, the

[32] The Central Bank reduced the reserve requirements from 45% in June 1977 to 11% in March 1980. The effect of this reserve reduction on the financial spread is emphasised by Adolfo Buscaglia Newspaper report, "The crisis of the financial system" by Adolfo Buscaglia, La Prensa, Thursday 24, April 1980, p. 10

financial spread returned to the spectacular rate of 23.5% which had existed in the second half of 1977, whereas the gross financial yield per unit of deposit reached its highest rate of that period: 22% per annum.

Regarding relative participation, the gross financial yield rose sharply and increased its share from about 50% to 95% over that period. A lesser contribution of the other factors was - to a large extent - a result of the relaxation of monetary policy. The participation in the financial spread of the cost of minimum reserve requirements - net of the deposit distribution effect - declined from 41% to 2% in these years. Accordingly, as time elapsed, the pattern of interest rate differential became more similar to that of the gross return of the financial intermediaries. What should be emphasised is that high and growing rates of mark-ups existed from the second half of 1979 on, despite the efforts made by the authorities to diminish the interest rate differential by raising the banking multiplier and expanding the monetary base[33].

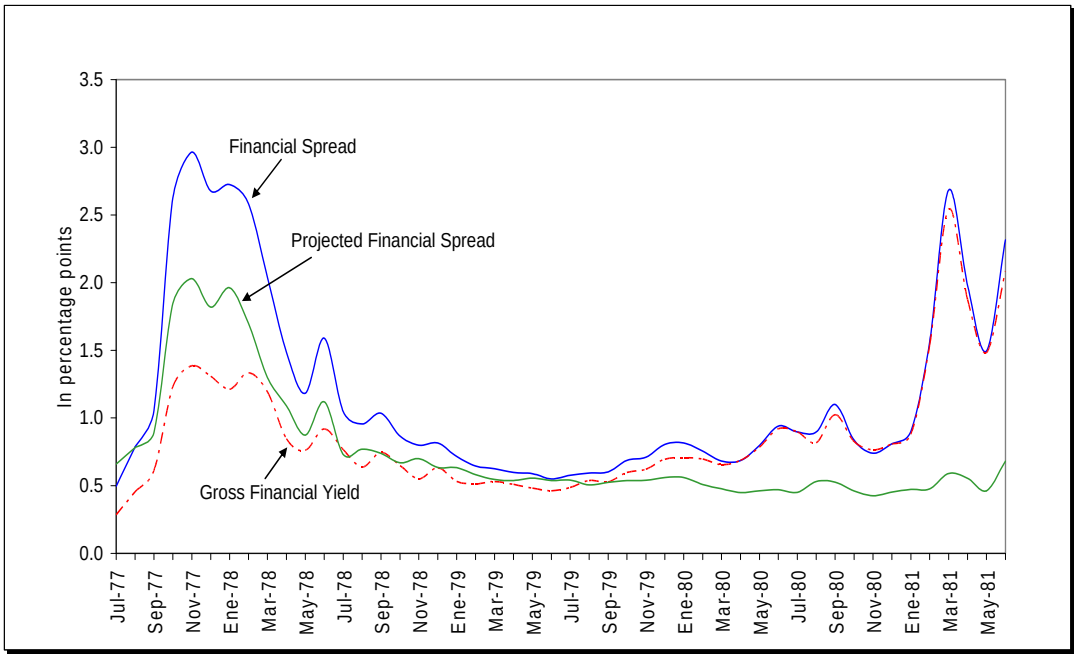
At this point, the following counterfactual enquiry arises naturally: what would the rate of financial intermediation spread have been if the banking sector had maintained the average (5.5% per annum) gross return per unit of deposit which prevailed during the third quarter of 1977, all other things being equal ? Graph VI.2 depicts the effective and the projected annual rates of financial spreads and the gross yield obtained by the financial intermediaries in real terms between July 1977 and June 1981.

[33] The policy of reserve requirements followed by the Central Bank is described in Chapter IV, Section 3

Graph V.2

Actual and Projected Rates of Financial Spread, 1977-81

(Monthly rates)




Source: own construction based on data of the Central Bank , Boletín Estadístico, several monthly issues, 1977-81.

The first point to be highlighted is that the projected rate of financial intermediation is always below the effective rate of financial spread, which indicates that the gross financial yield was always higher than the 'base rate'; that is to say, the gross financial yield on average of the third quarter of 1977. Had financial intermediaries maintained the base rate of the gross financial yield at 5.5% per annum, in March 1981 the annual rate of spread would have been 7.3% and *not*, the rate which actually resulted of 37.4% per annum. This shows that the gross financial yield is the driving factor of the financial spread, which explains its persistent increase from mid-1979 on. In effect, the effective rate of spread was higher by about 48% than the hypothetical curve in February 1980, and most of that difference - more than 90% - is totally due to the gross return (profits) obtained by the financial agents. The growing relative importance of the gross financial yield in the rate of spread is clearly seen in the graph above.

Several aspects of the evolution of the interest rates, financial spread and gross financial yield need to be stressed. To begin with, these rates show an increase in the sub-periods in which there was relatively higher macro-economic uncertainty (between July 1977-March 1978 and September 1979-July 1981). Additionally, there was a notable transfer of income and wealth towards the banking sector from both depositors and borrowers. This occurred as the former were nearly compensated for inflation and the latter did pay very high lending rates in real terms (see Table VI.1). At the same time, by reducing the cost of reserves, the Central Bank attempted to encourage banks to bring down the lending rate and, therefore, the rate of spread. This policy was – to some extent- effective until mid-1979. However, from this time on, the attitude of the banks was to maximise their profits (gross financial yield) by raising the lending rate That is to say, the higher gross financial yield in real terms was not the result of a decline in the rate on deposits but, of an increase in the lending rate. Finally, the rate on deposits was higher in real terms when the rate of inflation was lower, and that 'coincided' with the period in which the gross financial return for banks was rising, between mid-1979 and mid-1981.

The remainder of the Chapter is devoted to explaining these matters by studying how financial intermediaries decided on the interrelated issues of setting interest rates on deposits and on loans during 1977-81; and how this affected the banking risk position with regard to the liquidity, profitability and solvency of the institutions.

## V.4 INTEREST RATE DECISIONS IN A HIGHLY INFLATIONARY ECONOMY

This section develops a micro-economic model of interest rate decisions in a scenario of high inflation and uncertainty in order to explain the origin and the consequences of the extraordinarily high lending rates, mark-ups and gross financial yields of Argentine banks throughout the period 1977-81. For a financial agent, the problem of uncertainty is connected with changes in prices, value and quantities in the markets for assets and liabilities due to both macro-economic or systemic risks and micro-economic or idiosyncratic risks. While the former depend on factors exogenous to the bank and cannot be diversified by portfolio management, the latter constitutes the risks of banking activity itself and they include: the credit, interest rate and liquidity risks[34].

The credit (or default) risk derives from the possibility that the bank's debtors are not willing or able to meet their obligations at the agreed time. As a result of this, the bank can suffer from fluctuations in its market value and/or in the yield on its assets. Within the framework of the borrower-lender relationship, this type of risk will be considered in Chapter VI in which the factors affecting the economic performance of the non-financial private sector throughout the period of the financial liberalisation reform will be examined.

The risk-of-rates (or market risk) of a financial agent refers to changes in its net worth as a result of fluctuations in the returns on loans and on deposits which, in turn, are associated with the term-structure of assets and liabilities. In Section V.1, it was suggested that the practice of borrowing public deposits in order to lend them for longer periods gives rise to an interest rate exposure. That is, a balance sheet or duration mismatch, which is inherent to the operation of a financial asset-transformer, implies an interest rate risk. The economic consequence of this type of risk is variability in the levels of liquidity and the revenues of the financial agents. Whereas the credit risk involves the

[34] For a detailed theoretical analysis of this type of risks see X. Freixas and J.C. Rochet, Microeconomics of Banking, 1999, Chapter 8. pp. 221-56

problem of solvency, the risk-of-rates is connected with the liquidity and profitability of the bank.

Finally, as a borrower, a financial agent bears the risk that its creditors (depositors) do not wish to renew their deposits, or that they are willing to do so but only on different conditions, that is the liquidity risk. Due to the duration mismatching between assets and liabilities, a bank can suffer liquidity distress when there are significant deposit withdrawals. A way to pre-empt or abort this problem could be by raising the nominal rate of interest on deposits. This measure, however, could give rise to another economic woe for the bank: a reduction in its intermediation margin - lending minus deposit rates - which in turn, implies a lower banking profit. By the same token, in order to preserve its previous financial mark-up, the financial intermediary can increase the interest rate charged on loans. However, this could have a negative affect on the probability of loan repayments and, therefore, the default or credit risk would be augmented[35].

This suggests that the decision on deposit and lending rates - the intermediation margin - is a key element in the equation: liquidity-profit-solvency of a bank. Furthermore, the bank's decision on the interest rate is likely to acquire more importance in a scenario of macro-economic instability, where both the demand for deposits and the returns on loans are highly uncertain. Indeed, the bank has to decide the nominal rate of interest that will be charged on loan contracts in the next period. An optimal decision implies a 'full equilibrium' which, in turn, depends on the following elements: (a) an accurate forecast of the nominal rate of interest which will clear the credit market over the next period; and (b) a correct estimation of the rate on deposits that the bank will have to pay over the next period. While the former depends on the supply of and demand for loans, the latter depends on the supply of and demand for deposits over the next period.

[35] The negative effect of increasing lending rates on the probability of loan re-payments was examined by J. E. Stiglitz and A. Weiss, "Credit rationing in markets with imperfect information", American Economic Review, 1981, No. 71 (3), pp. 912-27. For a general analysis of the connection between quality and price see, J. E. Stiglitz "The causes and consequences of the dependence of quality on price", Journal of Economic Literature, March 1987, vol. XXV, pp.1-48

The next section presents a model of interest rate decisions of financial agents in a scenario of uncertainty and rampant inflation[36]. It should be stressed that previous analyses of interest rate setting in Argentina did *not* consider the effect of economic instability and inflation on the way banks make price decisions[37]. The present study was inspired by the approach used by Roberto Frenkel for the market of goods, it has been re-designed in order to examine the behaviour of financial agents from a new perspective[38]. This analytical framework will then be used to evaluate both the liquidity and interest rate risks of financial agents in Argentina over the period 1977-81.

### V.4.1 A Model of Interest Rate Decision with Imperfect Information

The decision as to interest rates, which will be modelled below, can be summarised as follows: if an intermediary charges a low nominal rate - below the market equilibrium rate - one should then expect all the funds offered to be allocated. Although this policy should give rise to a flow-gain in the next period, the bank could face liquidity and capital losses. This may occur under the following conditions: (a) the intermediary has lost deposits compared with its previous stock (liquidity loss); and (b) the intermediary has to pay a higher rate of interest on deposits (capital loss). *Vice-versa*, if the bank has charged a high rate on loans - above the equilibrium rate - there is a possibility that not all the credits offered were allocated. Whereas this will generate a potential income loss, it could avoid suffering liquidity and capital loss. Therefore, a rational banking decision about interest rates should take into account not only returns on flows but also

[36] Models of interest rate decisions can be found in T. Ho and A. Saunders, "The determinant of bank interest rate margins: Theory and empirical evidence", Journal of Financial and Quantitative Analysis, 1981, No.16 (4), pp. 581-600; J. Dermine, "Deposit rates, credit rates and bank capital: The Monti-Klein model revisited", Journal of Banking and Finance, 1986, No. 10, pp. 99-114; M. Monti, "Deposit, credit and interest rate determination under alternative bank objectives", In Mathematical methods in investment and finance, G. P. Szego and K. Shell eds., 1972; J. Yawitz, "An analytical model of interest rate differentials and different default recoveries", Journal of Financial and Quantitative Analysis, 1977, No. 12 (3), pp. 481-90.

[37] One notable exception is the study by Donald Mathieson, ''Inflation, Interest Rates, and the Balance of Payments during a Financial Reform: The Case of Argentina'', Staff Papers, IMF, December 1982, pp. 815-826

[38] Roberto Frenkel analysed how price decisions are taken by retailers in a highly inflationary scenario and the consequences for them of over- or under- estimating the rate of inflation. R. Frenkel, "Desiciones de Precios en Alta Inflación", Desarollo Económico, 1979, vol. 19, No. 75, pp. 21-69

on stocks. Furthermore, in the short-term, that decision should take into account the bank's liquidity position.

It is assumed that there is a single period planning horizon. At the beginning of this period, the financial intermediary makes plans to pay a certain rate on deposits and to charge a specific rate on loans throughout the period (t+k). This means that the bank faces a stochastic demand for deposits and for loans. Yet, as will be pointed out below, the stock of deposits - the liquidity risk - is taken into account in the decision on the nominal rate of deposits. When the decision as to the interest rate is made, the amounts of deposits which were attracted (or retained), as well as the amounts of loans which were allocated by the bank, remain constant over the period (t+k). Moreover, it is postulated that the financial agent sets the price of his credits with a mark-up over his unitary costs; and this *ex-ante* rate of financial mark-up is considered constant in the short-term. In each period, the financial intermediary takes decisions regarding loan allocation at a certain rate of interest. As a result, the intermediary faces three types of risks:

a. *Income Risk* refers to the possibility that the supply of credits of a financial agent cannot be totally allocated. This type of risk is due to possible mistakes in the estimation of the nominal lending rate which will 'clear' the market of credits in the next period. With regard to the economic effects, the income-risk can originate a banking loss equivalent to the cost of excess reserves. This can be measured by the quantity of funds which were not lent, multiplied by the difference between the effective lending rate and another alternative investment return - an opportunity cost - for the financial intermediary. The conjectured "income loss" depends on the sensitivity of the demand for credits to changes in the difference between the lending rate and the return on an alternative allocation, as well as on the length of the period throughout which the chosen rate will remain fixed. Formally, the income risk can be expressed as:

(1) $\Gamma_l = (L_t - L^a_{t+h}) * (i_{l\,t} - i^T_t) = - (L_t - L^a_{t+h}) * \omega$ since $L^a_{t+h} \leq L_t \Rightarrow \Gamma_l \geq 0$[39]

with: $\omega = (i_{l\,t} - i^T_t)$ [opportunity cost to the bank lending]

where:
$\Gamma_l$ = income loss.
$i_l$ = nominal lending rate.
$i^T_t$ = the rate of interest on Treasury Bonds (*Letras de Tesorería*).
$L_t$ = stock of credits offered at time (t).
$L^a_{t+h}$ = stock of loans allocated at time (t+k).

b. <u>*Capital Risk*</u> is related to the estimated cost of the funds which the bank will use to grant loans. The cost of funds - in percentage points - for credits which are allocated in the period (t), is given by the effective nominal rate on deposits of the next period (t+k). Accordingly, when the conjectured cost of loans 'underestimates' or 'overestimates' the effective rate on deposits in the next period, a financial intermediary obtains a capital loss or a capital gain respectively. By the same token, no capital effects occur when the conjectured cost of loans equals the effective nominal rate on deposits. From now on, the *conjectured* or *expected* cost of loans means the cost of funds - in percentage points - for credits which had been granted in the period (t). The *effective* rate on deposits means the nominal interest rate which clears the market of deposits in the period (t+k); that is to say, the ''equilibrium rate''. Formally, the "capital loss/gain" of a financial agent can be written as follows:

(2) $\Gamma_C = (i_{d\,t+k} - i^c_{d\,t+k}) * L^a_{t+h}$ with $(\Gamma_C < 0)$ $(\Gamma_C = 0)$ $(\Gamma_C > 0)$

where:
$\Gamma_C$ = capital loss/gain[40].
$i_d$ = nominal rate on deposits.
$i^c_{d\,t+k}$ = the conjectured cost of loans (in percentage points).

[39] It is assumed that the maximum amount of credits which the bank can allocate is constrained by its own lending capacity.
[40] Expression (2) can be zero, positive or negative, representing a neutral effect, a capital loss or a capital gain respectively.

c. *Liquidity Risk* is connected with the uncertainty regarding the stock of deposits that the intermediary will hold after the adjustment of the deposit market over the period (t+k)[41]. The economic effect of the liquidity risk is obtained by taking the nominal rate on deposits at time (t+k), multiplied by the difference between the stocks of deposits held by the bank between (t) and (t+k). The liquidity risk can also be expressed as the stock of deposits at time (t), multiplied by the difference between the effective rate on deposits at (t+k) and the 'liquidity-constant rate': the nominal rate of interest which maintains the amount of deposits at the level of the previous period.

$$(3) \qquad \Gamma_L = (i^L_{d\,t+k} - i_{d\,t+k}) * D_t \qquad \text{with} \quad \begin{matrix}(\Gamma_L < 0)\\ (\Gamma_L = 0)\\ (\Gamma_L > 0)\end{matrix}$$

where:
$\Gamma_L$ = liquidity loss/gain.
$i^L_{d\,t+k}$ = nominal interest rate which maintains the stock of deposits held at time (t).
$D_t$ = stock of deposits at time (t).

Equation (3) can be expressed in terms of the interest rate elasticity of the demand for deposits (supply of funds)[42].

$$(4) \qquad \Gamma_L = [-(D_{t+k} - D_t)/ D_{t+k}] * i_{d\,t+k} * (1/ \varepsilon_d^D) * D_t$$

with: $\varepsilon_d^D = [-(D_{t+k} - D_t)/ D_{t+k}] * [i_{d\,t+k} / (i^L_{\,t+k} - i_{d\,t+k})]$

where: $\varepsilon_d^D$ = interest-rate-elasticity of the demand for deposits (supply of funds).

Equation (4) shows that the "liquidity risk" is a function which depends on the stability of the demand for deposits (supply of funds) and on its interest-rate-elasticity.
In order to express the economic results of the three types of risks - income, capital and liquidity - as a proportion of total loans, equations (1), (2) and (4) are divided by

[41] This measure of the "liquidity risk" is different from that which is presented below in Section V.5.
[42] The elasticity means the sensitivity of an endogenous variable - per unit point - to changes in a certain exogenous variable, while all other explanatory variables remain constant. In this analysis, the term elasticity refers always to the interest-rate-elasticity.

($L_t$). In addition, the stock of deposits included in equation (4) is replaced by its loan equivalent [$D_t = L_t/(1-r)$].

(1') $\Gamma_l = \omega * \lambda_l$

(2') $\Gamma_C = (i_{dt+k} - i^c_{dt+k}) * (1 - \lambda_l)$

(4') $\Gamma_L = - [ i_{dt+k} * (1/ \varepsilon_d^D ) * [1/(1-r)] * \lambda_d ]$

where: r = rate of legal reserve requirements.

with:

[$\lambda_l = (1 - L^a_{t+k} / L_t)$]; the amount of credits which was ***not*** allocated at time (t+k) as a proportion of total loans offered at time (t) and;

[$\lambda_d = (1-D_t / D_{t+k})$]; changes in the stock of deposits between (t+k) and (t) as a proportion of the total deposits available at time (t).

By considering the interest-rate-elasticity of the demand for credits as well as the supply of deposits (demand for funds), the expressions ($\lambda_l$) and ($\lambda_d$) are equal to:

(5) $\lambda_l = (\partial L^D / L^D) = (- \varepsilon_l^D) * (\partial i_l / i_l) = (- \varepsilon_l^D) * (\partial i_d / i_d)$[43]

(6) $\lambda_d = (\partial D^D / D^D) = (- \varepsilon_d^S) * (\partial i_d / i_d)$

where:
$\varepsilon_l^D$ = interest-rate-elasticity of the demand for loans.
$\varepsilon_d^S$ = interest-rate-elasticity of the supply of deposits (demand for funds).

Therefore, the equations (1'); (2') and (4') can be re-written as follows:

(1'') $\Gamma_l = - [ \omega * \varepsilon_l^D * (1/ i_{dt+k}) * (i_{dt+k} - i^c_{dt+k})]$

(2'') $\Gamma_C = (i_{dt+k} - i^c_{dt+k}) + [ \varepsilon_l^D * (1/ i_{dt+k}) * (i_{dt+k} - i^c_{dt+k})^2 ]$

(4'') $\Gamma_L = [(\varepsilon_d^S / \varepsilon_d^D ) * [1/(1-r)] * (i_{dt+k} + k - i^c_{dt+k})]$

[43] See equation (14) below in which $i_l = i_d * (1+ \varphi)$; therefore $(\Delta i_l / i_l) = (\Delta i_d / i_d)$, ($\varphi$) being constant in the short-term.

It is observed that the economic effects of the three types of risk are defined in terms of the decision variable ($\alpha$): the difference between the effective nominal rate on deposits ($i_{d\,t+k}$) and the conjectured nominal cost of loans ($i^{c}_{d\,t+k}$).

(7) $\alpha = (i_{d\,t+k} - i^{c}_{d\,t+k})$ with: $(\alpha>0)$ $(\alpha=0)$ $(\alpha<0)$

However, it should be pointed out that the variable [ $\alpha = (i_{d\,t+k} - i^{c}_{d\,t+k})$] depends on the absolute value of the nominal rate on deposits ($i_{d\,t+k}$) in some terms of these equations, whereas in others it does not [see equations (1''), (2'') and (4'')]. This means that the variable ($\alpha$), cannot be taken as the "common variable" for the three risk functions, since there is a linear dependency on the absolute value of the nominal rate of interest ($i_d$). The direct effect of this would seem to be that the decision to 'overestimate' or 'underestimate' the lending cost depends on the absolute value of the nominal interest rate. In fact, this is totally incorrect. For a correct formulation, a "normalisation" of the expressions (1''); (2'') and (4'') is required so as to eliminate the dependence of the variable ($\alpha$) of the absolute value of the nominal interest rate ($i_{dt+k}$). Accordingly, the following restriction is imposed:

(8) $\alpha = (i_{d\,t+k} - i^{c}_{d\,t+k}) = (i_{d\,t+k} - i^{c}_{d\,t+k}) * (1/ i_{d\,t+k})$; which implies that: $i_{d\,t+k} = 1$

That is to say, when the effective nominal rate of interest is set at one percentage point (1%), the decision variable ($\alpha$) is simultaneously: (a) the nominal difference between the deposit rate and the conjectured lending cost; and (b) this same difference as a percentage of the nominal rate on deposits. By adding up the equations that represent the income, capital and liquidity risks, the aggregate loss/gain risk function of a bank comes out as:

(9) $\Gamma(\alpha) = \alpha - [\ \omega * \varepsilon_l^{D} + (\varepsilon_d^{S} / \varepsilon_d^{D}) * 1/(1-r)] * \alpha + \varepsilon_l^{D} * \alpha^{2}$

where:

$$\Gamma(\alpha) = \begin{cases} 0 & \text{if } \alpha = 0 \\ \alpha + [\,(\varepsilon_d^S / \varepsilon_d^D) * 1/(1-r)\,] * \alpha & \text{if } \alpha > 0 \\ \alpha + [\,-\omega * \varepsilon_l^D + (\varepsilon_d^S / \varepsilon_d^D) * 1/(1-r)] * \alpha + [\varepsilon_l^D] * \alpha^2 & \text{if } \alpha < 0 \end{cases}$$

When the conjectured lending cost *underestimates* the effective rate on deposits for the next period ($\alpha > 0$), the following economic effects will occur: (a) a capital loss per unit of loan equivalent to ($\alpha$) and; (b) a liquidity loss per unit of loan equal to $\{[(\varepsilon_d^S/\varepsilon_d^D) * 1/(1-r)] * \alpha\}$. In this case, it is assumed that the entire amount available for loans has been allocated and hence, there is no income loss. With regard to “capital risk”, since the cost of funds (effective deposit rate) which have been lent is higher than predicted, the bank suffers a capital loss. Moreover, a liquidity loss comes about because the stock of deposits which a bank retains at time (t+k) is lower than the amount held at time (t).

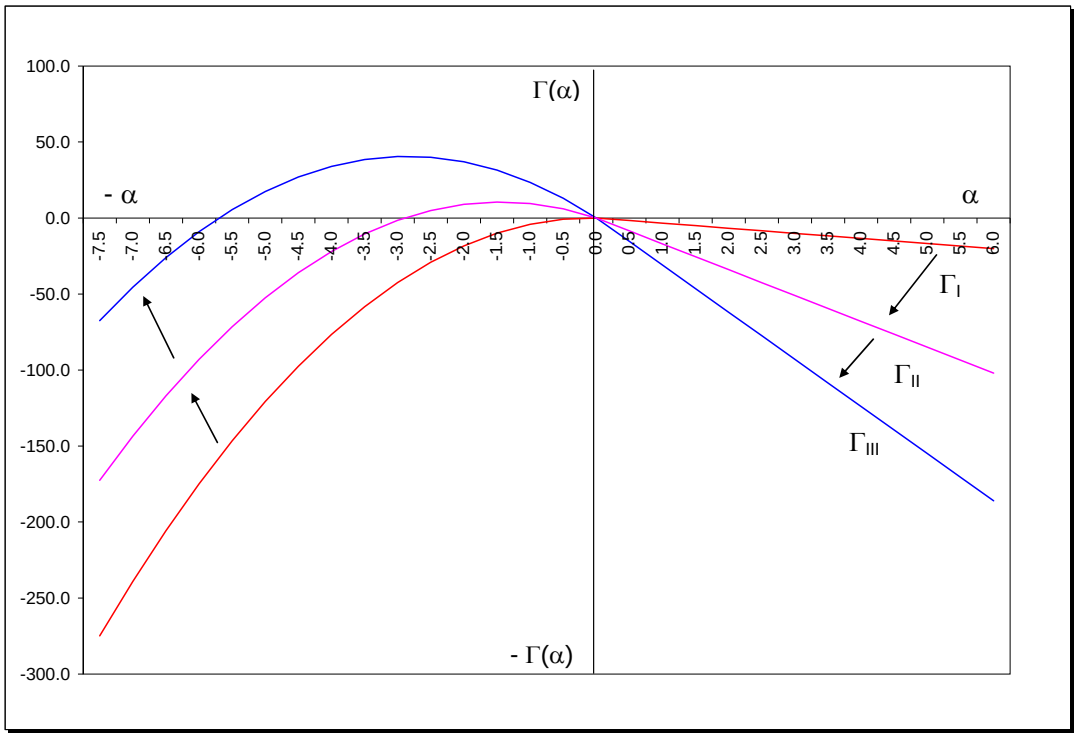
On the other hand, the economic consequences of *overestimating* the conjectured cost of loans in relation to the effective nominal deposit rate ($\alpha < 0$) are the following: (a) an income loss which is equivalent to $[\,\omega * \varepsilon_l^D * \alpha]$; (b) a capital gain equal to $\{\alpha + [\,\varepsilon_l^D * \alpha^2\,]\}$ and; (c) a liquidity gain equivalent to $\{[(\varepsilon_d^S/\,\varepsilon_d^D) * 1/(1-r)] * \alpha\}$. Whereas the income loss indicates that the amount of potential loans was not totally allocated, the capital gain implies that the financial agent has overvalued the costs of funds lent. In turn, the liquidity gain suggests that the intermediary has obtained a higher amount of deposits at (t+k) compared with the stock held at time (t).

Graph V.3 depicts the risk function ($\Gamma$) of a financial intermediary in the period (t) in connection with the decision variable ($\alpha$): the difference between the effective nominal rate on deposits and the conjectured cost of loans for the period (t+k).

Graph V.3

The Loss/Gain Risk Function

(In percentage points)




Source: own construction based on the model developed on pp. 24-28

The aggregate risk function $\Gamma(\alpha)$ is asymmetric with regard to the position of underestimation or overestimation of the conjectured cost of loans in relation to the effective rate on deposits. In effect, when the conjectured cost of loans has been set lower than the effective rate on deposits ($\alpha>0$), the right side of the risk function has a line with a negative slope [1+ ($\varepsilon_d^S/\varepsilon_d^D$ )]. For a given value of ($\alpha$), the lower (higher) the interest-rate-elasticity of the demand for (supply of) deposits, the higher the expected banking loss. The sensitivity of the risk function to the interest-rate-elasticity of the demand for and supply of deposits is due to the 'liquidity- and capital-effects' on the banks.

However, in the case that the conjectured cost of loans is higher than the rate on deposits ($\alpha<0$), the left side of the loss/gain function has a quadratic form, with one of

its roots located in the origin of the (Y-X) axis. In this position and depending on the functional parameters, there is a possibility that the bank can obtain economic gains by overestimating the effective return paid on deposits. The outcome is positive when the capital and the liquidity gains more than outweigh the 'income loss' which is sustained by not being able to allocate all the amount of credits offered. By the same token, when the conjectured cost of loans equals the nominal rate on deposits for the next period, the bank does not suffer capital losses or gains ($\alpha$=0).

It should be pointed out that the optimal banking decision about the cost of loans ($i^{c}_{d\ t+k}$) depends on the parameters of the risk function as mapped above. Graph V.1 shows the loss/gain function in three different positions. By taking the function ($\Gamma_{I}$ ), the risk of suffering losses is higher if the cost of loans is overestimated rather than underestimated in relation to the effective nominal rate on deposits, for all absolute values of ($\alpha$). However, by changing the parameters and allowing a clockwise rotation of the risk function $\Gamma(\alpha)$, the probability of making economic losses increases with an underestimation and decreases with an overestimation of the effective rate on deposits. If this movement continues, there comes a point where the financial intermediary will confront the alternatives of risking the possibility of making a profit by overestimating the effective rate on deposits or, on the contrary, of underestimating that rate and suffering economic losses. In other words, when the loss/gain function moves from position ($\Gamma_{I}$) to ($\Gamma_{III}$), the appropriate banking decision about the conjectured cost of loans changes from a position in which an overestimation of the effective nominal rate on deposits has to be avoided, to another in which that option becomes optimal.

It can, therefore, be concluded that the decision of a bank to overestimate or to underestimate the expected nominal rate on deposits depends on: (a) the parameters of the risk function and; (b) the degree of uncertainty about the future return that the bank will have to pay on deposits (the effective nominal rate on deposits which will prevail in the next period). Moreover, as will be seen later on, there is a fundamental

interrelation between the level of economic uncertainty and the value of the parameters of the loss/gain risk function.

To simplify the analysis, it can be assumed that the expected nominal deposit rate paid by all banks - on average - coincides with the *ex-post* market rate on deposits. With fully informed rational financial agents, the optimal decision in relation to the cost of loans depends purely on the parameters of the loss/gain function. In other words, the optimal banking decision is obtained by maximising the objective function ($\Gamma$) in relation to the variable ($\alpha$) [max. equation 10].

(10) $$\alpha = (i_{d\,t+k} - i^{c}_{d\,t+k}) = \{(\omega * \varepsilon_l^D - [(\varepsilon_d^S/\varepsilon_d^D) * 1/(1-r) + 1]\} / [2 * \varepsilon_l^D]$$

with: $i^{e}_{d\,t+k} = i_{d\,t+k}$;
$i^{e}_{d\,t+k}$ = expected nominal rate on deposits for the period (t+k).

There are only two possible outcomes of this maximisation process: either the financial agent sets a cost of loans which equals the estimated nominal rate on deposits over the next period ($\alpha$=0), or the conjectured costs of loans overestimate the expected deposit rate ($\alpha$<0). While the former can be taken as a “normal” economic result, the latter is the “special” outcome which this model has identified. It must be pointed out that the result in which the conjecture cost of loans underestimates the expected rate on deposits ($\alpha$>0) is not feasible with perfect information and rational agents. In other words, the underestimation is only an open possibility for the case of decisions made under uncertainty.

From equation (10), the conjectured cost of loans - in percentage points - is equal to:

(11) $$i^{c}_{d\,t+k} = i_{d\,t+k} + \{[(\varepsilon_d^S/\varepsilon_d^D) * 1/(1-r) + 1] - \omega * \varepsilon_l^D\} / [2 * \varepsilon_l^D]$$

This suggests that the condition for overestimating the expected rate on deposits is that the aggregate effect of the liquidity and capital gains has to be higher than the income loss[44]. That is,

(12) $\{[(\varepsilon_d^S/\varepsilon_d^D) * 1/(1-r) + 1] > \omega * \varepsilon_l^D\}$.

If the above condition holds, the conjectured cost of loans rises whenever there is: an increase (decrease) in the interest-rate-elasticity of the supply of (demand for) deposits ($\varepsilon_d^S/\varepsilon_d^D$); a decrease in the interest-rate-elasticity of the demand for loans ($\varepsilon_l^D$); an increase in the rate of legal reserve requirements (r) and; an increase in the opportunity cost for the financial agent ($\omega$). When the functional parameters change in the direction commented on above, the function $\Gamma(\alpha)$ rotates clockwise as shown in Graph VI.3.

A final point to be considered is the interconnection between the cost of funds for the bank and its margin of financial intermediation. Throughout this section, it has been assumed that the banks set the price of loans with a mark-up over their unitary costs. The study begins by defining the financial spread - margin of intermediation - of a bank as the difference between the nominal lending and deposit rates as a percentage of the deposit rate [$m_t = (i_{l\,t} - i_{d\,t})$]. Hence, the rate of spread for the period (t) is as follows:

(13) $\varphi_t = m_t / i_{d\,t}$

Thus, the nominal lending rate of a bank for the period (t) can be expressed as a function of the nominal rate on deposits and the rate of financial mark-up.

(14) $i_{l\,t} = i_{d\,t} * (1+ \varphi_t)$

From expression (8), it is known that the cost of loans which was conjectured by the bank for the period (t+k) can be equal to, or higher or lower than the interest rate which will prevail in market of deposits in that period. That is,

[44] In this case, the overestimation of the expected cost of loans is an optimal result for the bank.

(15) $i^{c}_{d\,t+k} = i^{e}_{d\,t+k} + \alpha$

$\alpha$ = the rate of overestimation ($\alpha$>0) / underestimation ($\alpha$<0) of the effective deposit rate of the period (t+k).

By using expressions (14) and (15), the nominal lending rate for the period (t+k) can be written as:

(16) $i_{l\,t+k} = i^{c}_{d\,t+k} * (1+ \varphi_t) = (i^{e}_{d\,t+k} + \alpha) * (1+ \varphi_t)$

Equation (16) shows that the nominal lending rate set in the period (t) is a function of the conjectured cost of funds and of the financial spread of the bank. In addition, the extension of (k) - the period which lies between (t) and (t+k) - affects the level of uncertainty in connection with the expectation of the nominal rate on deposits. If (k=0), there is no uncertainty with regard to the rate on deposits and hence, the lending rate becomes the expression (14).

With (k>0) and, if the expected nominal rate on deposits of the banks coincides with the ***ex-post*** market rate on deposits on average then, its nominal lending rate for the period (t+k) will be:

(17) $i_{l\,t+k} = i_{d\,t+k} + m_t + \alpha * (1+ \varphi_t)$

(18) $m_{t+k} = m_t - \alpha * (1+ \varphi_t)$ with: $m_{t+k} = (i_{l\,t+k} - i_{d\,t+k})$

Expression (18) above shows that the difference between the ***ex-post*** rate of spread [$m_{t+k}$] and its ***ex-ante*** rate [$m_t$] is equal to the rate of overestimation/underestimation of the nominal rate on deposits [$\alpha$] multiplied by the factor [$1+ \varphi_t$]. In other words, a high ***ex-post*** rate of financial spread can be the result of an overestimation by the bank as to the nominal rate on deposits.

### V.4.2 Testing the Model: A Case-Study of Interest Rate Decisions under Uncertainty

The objective now is to verify the empirical relevance of the model of interest rate decisions in the case of Argentina throughout the period 1977-81. In this assessment, particular attention is given to the effect of changes in the economic environment on the interest-rate-elasticities; which consist of the behavioural variables of the loss/gain function[45]. The analysis begins by estimating the demand for and the supply of deposits as well as the demand for loans so as to obtain the interest-rate-elasticities of the risk-function[46]. The other functional parameters - the opportunity cost and the legal reserve requirements - are calculated as a mean-value of those years, which is also the criterion followed with the rates of elasticity. Graph VI.4 presents this loss/gain function ($\Gamma_A$) for the period Jul. 1977 – Dec. 1981.

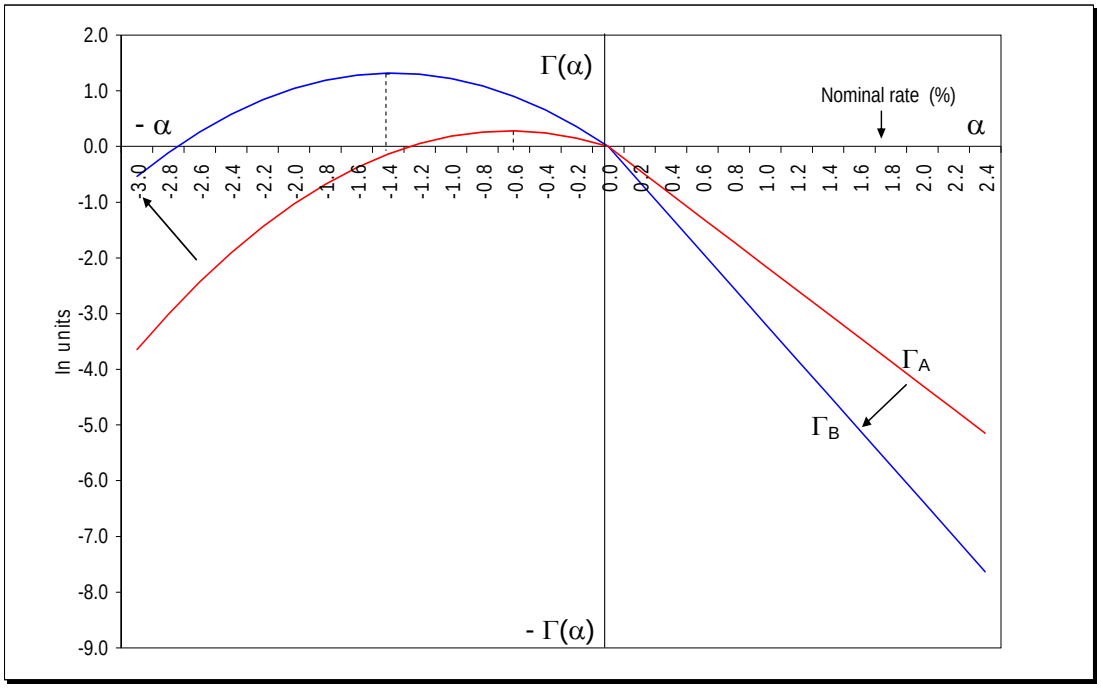
[45] These changes in the economic environment include cases of financial distress, a sharp increase in the devaluation risk, runs on banks and so on. A detailed analysis can be found in Chapter IV, Sections 4 and 5.

[46] Appendix B to Chapter V contains the regressions used to estimate the interest-rate-elasticities included in the loss/gain risk function presented above in Graph V.4

Graph V.4

The Loss/Gain Risk Function of Argentina, 1977-81

(Monthly rates)




Source: own construction based on the model developed on pp. 24-28 with data obtained from the Central Bank of Argentina, Boletín Estadístico, several monthly issues, 1977-81.

The parameters of the function ($\Gamma_A$) are: the rates of elasticity: [$\varepsilon_d^S = 2.39$; $\varepsilon_d^D = 1.92$; $\varepsilon_l^D = 0.70$]; the alternative investment return of the financial intermediary [$\omega = 1.76$]; and the coefficient of legal reserve requirements [r = 0.25]. The first comment to be made is that the values of the functional parameters confirm something which is evident in the graph above: the *condition of overestimation* of the expected rate on deposits exhibited above is fulfilled: the aggregate effect of the liquidity and capital gains is greater than the income loss. In effect, $\{[(\varepsilon_d^S/\varepsilon_d^D) * 1/(1-r) + 1] = 2.6 > \omega * \varepsilon_l^D = 1.2\}$. Accordingly, the optimal banking decision implied an overestimation of the expected nominal rate on deposits by about 0.6% per month on average throughout the period under study[47]. This means that, for instance, if the expected nominal rate on deposits was 8% per month (152% per year), the financial agent would have taken a monthly rate of 8.6%

[47] This 'optimal' rate overestimation was obtained by assuming that the expected nominal rate on deposits of the different financial agents - on average - coincides with the *ex-post* market rate of deposits.

(169% per year) as the cost of the funds which had been allocated to loans in the previous period[48]. This result - overestimation of the effective rate of deposit on the part of the banks in Argentina during these years - is fully confirmed by the econometric study of Donald Mathieson: ''differences between actual and expected inflation have implied that *ex-post* real interest rates have been higher than *ex-ante* (or expected) real interest rates''[49]

Another goal of this study is to test whether the behavioural variables - the elasticity rates - of the loss/gain function were affected by changes in the general economic conditions. This is carried out by contrasting two loss/gain functions: the loss/gain function estimated for the whole period 1977-81 compared with that which corresponds to a sub-period characterised by a higher level of uncertainty and distress in the financial market.

It has been argued that shocks on supply and demand determine the variations in a particular market price; and this is usually taken as a measure of the degree of market uncertainty[50]. With regard to the level of uncertainty in the market of deposits, the variability of the *ex-post* nominal rate on deposits presents a standard deviation of 1.9% between mid-1977 and the end of 1981. The volatility of this rate rises sharply reaching a standard deviation of 2.32 between August 1979 and December 1981. Moreover, as analysed in Chapters IV and VI, - the issue of financial distress and the worsening in the general economic conditions of the private sector started to be evident in the third quarter of 1979. Hence, it seems appropriate to compare a sub-period with a relatively higher level of uncertainty August 1979 - December 1981; with the whole period under analysis July 1977 - December 1981.

---

[48] For a different period of the Argentine economy (1963-76) and following a different approach, Mario Blejer confirms that inflationary expectations - the main component of the bank decision in our analysis - played a crucial role in the determination of the level of nominal interest rates. M. Blejer, "Money and the Nominal Rate of Interest under Rapid Inflation: An Empirical Test," Journal of Political Economy, June 1978, pp. 529-34.

[49] D. Mathieson, Op. Cit., 1982, p. 825

[50] This has been explained earlier in this Chapter in Section V.2

Following the same criteria and taking the regressions used for the loss/gain function ($\Gamma_A$), the function ($\Gamma_B$) is estimated for the selected sub-period (see Graph VI.4). The parameters of this risk function are: the rates of elasticity: [$\varepsilon_d^S$ = 2.60; $\varepsilon_d^D$ = 1.43; $\varepsilon_l^D$ = 0.70]; the opportunity cost of the bank [$\omega$ = 1.80]; and the coefficient of legal reserve requirements [r = 0.20]. Taking into account that the elasticity rates are the only behavioural variables in the model of interest rate decisions, it is important to identify the factors which modified the functional parameters in the two periods under analysis.

To begin with, a more inelastic demand for deposits from the depositors indicates that agents demanded more than a proportional increase in the nominal return on deposits to offer an extra unit of saving. This situation was the result of an increase in the level of economic uncertainty which implied that agents, for a given supply of funds, asked for a higher rate premium in order to compensate for the higher risk that they were assuming. In addition, a more elastic supply of deposits - demand for funds from banks - reveals that there was higher interest rate competition among the banks in the market of deposits after the liberalisation reform of 1977.

With these parameter values in the risk function ($\Gamma_B$), the optimal decision of the intermediaries was to overestimate the expected nominal rate on deposits by about 1.4% per month on average between August 1979 and December 1981[51]. It should be noted that the rate of overestimation in this sub-period was more than the double that calculated for the whole period Jul. 1977 – Dec. 1981.

What is important now is to identify the extent to which the *income*, *capital* and *liquidity effects* contributed to that result. This requires a substitution of the parameter values in the equations which represent separately the three economic effects (eqs. 1'', 2'' and 4''). The examination shows that the higher overestimation of the rate on deposits is

[51] The condition of overestimation in the sub-period Aug. 1977- Dec. 1981 is the following: {[($\varepsilon_d^S/\varepsilon_d^D$) * 1/(1-r) + 1] = 3.34 > $\omega$ * $\varepsilon_l^D$ = 1.26}

totally due to the *liquidity-effect*. This is so, as the functional parameters which correspond to the equations of the risks of income and capital - the elasticity rate of the demand for loans ($\varepsilon_l^D$) and the opportunity cost of the bank ($\omega$) - changed slightly (from 1.2 to 1.6) over either the sub-period or the whole period under analysis.

Next, the consequences of the overestimation of the nominal rate on deposits must be considered. As the *ex-ante* rate of financial mark-up is taken to be constant in the short-term, variations in the lending rate are due to changes in the conjectured cost of the funds to be lent. As shown in equations (13-16), if the cost of funds which was conjectured by the intermediary is above the effective nominal rate on deposits, the *ex-post* rate of financial mark-up will be higher than its *ex-ante* level. Indeed, over the period 1977-81, the *ex-post* annual rate of spread in real terms was on average 15.9%. With an overestimation of the annual cost of funds of about 7.3%, the actual rate was 8.6%. Therefore, an overestimation of the expected nominal rate on deposits gave rise to an *ex-post* annual rate of financial mark-up which was nearly double the corresponding *ex-ante* rate. By the same token, over the sub-period August 1979 - December 1981, the *ex-post* rate of spread (18.1%) was twice its *ex-ante* value (8.9%) per year, which implies an overestimation equivalent to 9.2% per year.

With the empirical testing of the model of interest rate decisions, it has been proved so far that: first, the overestimation of the expected nominal rate on deposits was an 'optimal decision' of the financial agents given the macro-financial circumstances operating in Argentina between mid-1977 and 1981. Secondly, the higher the level of economic uncertainty, the higher the overestimation of the expected nominal rate on deposits between August 1979 and December 1981. Thirdly, out of the three effects considered above (*income*, *capital* and *liquidity*); an increase in the level of uncertainty affected primarily the risk of liquidity of banks. Fourthly, the overestimation of the cost of funds lent by the bank explains the extremely high and variable rates of financial

spread characteristic of the period 1977-81[52]. Finally, an increase in the level of macro-economic uncertainty led to an ***ex-post*** increase in the gross financial yield and in the lending rate charged by the banks[53].

All this suggests that the financial intermediaries increased the interest rate differential (financial spread) between deposits and loans as a way of protecting themselves from the consequences of the increasing volatility evidenced in the demand for deposits (supply of funds). In other words, a higher financial spread was aimed at compensating for the growing interest rate risk that the intermediaries started to encounter from mid-1979 on[54]. In this way, the bank attempted to pass on the interest rate risk to the private and government sectors. However, as will be discussed in Chapter VI, this policy backfired, as the probability of loan repayments was negatively affected by the increase in the lending rate.

Finally, a point to be discussed is the position of banks in connection with credit allocation in the period in which the probability of loan repayment was declining, as a result of an increase in the lending rates. In this situation, the typical result put forward by Stiglitz and Weiss is that the loan supply curve bends backwards and, after a certain point, higher lending rates will only decrease the supply of credits raising the excess demand for loans[55]. At that point, the optimal decision for the bank is not to increase the rate on loans but to ration credits. This, however, was ***not*** the decision taken by the bankers in Argentina who, contrary to that sensible practice, continued lending to riskier borrowers and allocated funds to riskier projects. What must be asked is whether this was simply an irrational policy decision or whether the banks had other reasons for behaving in this way.

---

[52] Mathieson reached the same conclusion for Argentina: ''The spread between the deposit and the lending rates has been influenced by not only domestic financial policies (e.g. the reduction in the reserve requirement and the payment on interest on reserves) but also by the elasticity characteristics of the demand and supply of bank loans and time deposits'', Op. Cit., 1982, p. 826

[53] Following a different approach, Frenkel found the same cause-effect relationship between the level of uncertainty in the foreign exchange market and the nominal lending rate. See R. Frenkel, Op. Cit., 1983, pp. 2041-76.

[54] The connection between the level of macro-economic uncertainty and the interest rate risk has been explained earlier.

[55] J. E. Stiglitz and A. Weiss, Op. Cit. 1981, pp. 912-27.

The model developed by Stiglitz and Weiss is a partial analysis which takes into consideration only the asset side of the bank. If one includes both the asset and the liability sides of the balance sheet as was done earlier, the decisions as to what is optimal for the financial intermediary may be completely different. That is, the rate on loans that the bank charges depends - among other factors - on the costs of funds (deposit rate) that it has to pay out. Thus, nothing can ensure that the lending rate which maximises the return of a bank is compatible with its overheads plus the interest rate prevailing in the market for deposits. In other words, what the banks need to pay out to retain their deposits may not necessarily be lower than the lending rate which ***maximises*** the return of banks. Whereas the former depends on the short-term conditions of liquidity in the market for deposits, the latter depends on the long-term conditions of profitability of borrowers. Therefore, there may be cases where the interest rate that is optimal for the bank's profitability may not be compatible with the optimal rate for preserving its level of deposits. This is of great importance in a scenario of economic uncertainty and inflation where the demand for deposits (supply of funds from the depositors) becomes more unstable and the likelihood of making mistakes in predicting inflation is consequently greater.

In short, the model constructed is this Chapter offers a more comprehensive analysis than that of Stiglitz and Weiss and demonstrates that banks take into consideration not only the ***profitability*** but also the problem of ***liquidity*** when setting interest rates. By this means, it has been proved that the above mentioned interest-rate-incompatibility emerged in the financial system of Argentina between mid-1979 and 1981. That is, by trying to reduce the probability of running into short-term problems of liquidity, the banks were augmenting their probability of facing long-term problems of solvency.

## V.5 THE MANAGEMENT OF LIQUIDITY RISK

The previous section focused on the connection between short-term price decisions taken by financial agents and the issue of banking risk. In this section, the topic of liquidity risk within the banking system is analysed further by considering how the banks managed their assets and liabilities over the period of financial liberalisation[56]. An appropriate way to begin is by defining the notion of liquidity as possessing the funds when needed at reasonable cost. This cost per unit of deposit is reasonable if it lies in a range between the lending rate and the deposit rate of the bank. A financial agent usually meets his obligations with cash reserves or by attracting new deposits, selling short-term assets and/or borrowing from the credit market or the Central Bank. All these alternatives have an associated cost: assets that could have been allocated at higher returns and the expense of further borrowing. Given that either an excess or a lack of liquid assets have economic costs, optimal liquidity management is attained when the financial intermediary is able to meet his obligations at a minimum cost.

Two special features of financial activity explain the origin of the liquidity risk in banks. To begin with, one of the main functions of the bank is the transformation of maturities and the provision of liquidity to other economic sectors. Accordingly, the key to the success of an asset-transformer intermediary lies in their ability to hold an illiquid portfolio - a negative net asset position in the short-term - and yet to operate without suffering liquidity distress[57]. What actually matters to banks is global asset-liability management, and this depends on the maturity of assets and liabilities and on the relationship between the two: the balance sheet mismatch.

---

[56] For a thorough analysis of liquidity risk management in banks see, for instance, E.I. Altman, Corporate Financial Distress: A complete guide to predicting, avoiding and dealing with bankruptcy risk, 1983; E. Baltensperger and H. Milde, "Predictability of reserve demand, information costs and portfolio behaviour of commercial banks", Journal of Finance, 1976, No. 31, (3), pp. 835-43; G. H. Hempel and D. G. Simonson, Bank financial management: Strategies and techniques for a changing industry, 1991; C. F. Huang and R. Litzenberg, Foundations for financial economics, 1988; J. E. Ingersoll (Jr.), Theory of financial decision making, 1987; D. Kim and A. Santomero, "Risk in banking and capital regulation", Journal of Finance, 1988, No. 35 (5), pp. 1235-44; D. Pyle, "On the theory of financial intermediation", Journal of Finance, 1971, No. 26 (3), pp. 737-47; B. Stanhouse, "Commercial bank portfolio behaviour and endogenous uncertainty", Journal of Finance, 1986, No. 41 (5), pp. 1103-14.

[57] A negative short-term net asset position means that the amount of short-term liabilities exceeds the amount of short-term assets.

Moreover, a financial intermediary is - to a large extent - uncertain about the funds that will be required to meet their obligations. This is so, as both the current and savings deposits mature at the discretion of the depositors and, therefore, the requirement for resources cannot be accurately anticipated. Another source of uncertainty are liabilities with a fixed maturity such as time deposits, which may or may *not* be renewed when they mature. Consequently, the bank's need for funds is highly dependent on the net flow of deposits - inflows and outflows - and on the demand for loans, all of which is hard to foresee.

These two factors - the degree of balance sheet mismatching and the uncertainty about the net flows of deposits - are the reasons why banks hold liquid assets[58]. Banking reserves constitute a 'liquidity buffer' which helps to protect the institutions from the effects of deposit withdrawals, which are not always controllable or predictable.

### VI.4.1 Net Defensive Position

The simplest way to measure bank liquidity is by looking at the amount of liquid assets in relation to total deposits. This can be done by aggregating the assets and liabilities held by the banks into certain balance sheet categories as follows:

(19) Deposits + Equity = Defensive Assets + Loans and Investments

In this simplified accounting identity, the deposits and the capital plus reserves - net worth - of the financial intermediary are divided into two types of assets: loans and investments (long-term) and defensive assets or banking reserves (short-term). The category of 'loans and investments' is illiquid in the short-term or its value is uncertain,

[58] This is also the rationale for the existence of liquidity regulation by the Central Bank. For more details, see Chapter IV, Section 3. A theoretical justification of these regulations is found in: M. Dewatripont and J. Tirole, The prudential regulation of banks, 1994; E. Fama, Banking in the theory of finance, "What's different about banks?" Journal of Monetary Economics, 1985, No. 15 pp. 29-40; X. Freixas and J.C. Rochet, Op. Cit., Chapter 9, pp. 257-94.

which means that this kind of asset can be converted into liquid funds only at some risk of loss. In contrast, the 'banking reserves' are assets of very high liquidity including cash reserves, deposits in other banks and in the Central Bank, treasury bills, overnight loans and, commercial bills which can be sold, discounted or pledged within the financial system in return for cash.

While the assets considered as 'loans and investments' generate the flow of revenues to the financial agent, those aggregated into the category of 'defensive assets' protect them from unexpected liquidity problems. Within the latter, two types of banking reserves can be identified: one is the compulsory reserves - primary reserves - required by the Central Bank as a means of monetary regulation. The other is the result of the portfolio decisions made by the financial agent and, it is made up of liquid assets held in *excess* of the legal reserve requirements - secondary reserves.

Both, the ***kind*** and the ***amount*** of defensive assets retained by a bank is an indication of the liquidity risk that an institution is running[59]. In order to measure this banking risk, the net defensive position of the financial agent is defined as the amount of the bank's reserves - defensive assets - in excess of the funds required by the authority[60].

(20) Net Defensive Position = Defensive Assets – Reserve Requirements

By substituting equation (20) in the accounting identity (19), the net defensive position per unit of deposit can be written as follows:

(21) ndp = (1 - r ) + (Equity - Loans and Investments) / Deposits

[59] As shown in Chapter VI, the risk position of a firm or a bank with regard to liquidity and solvency is ***not*** independent of the general economic cycle. See also B. S. Bernanke, "Bankruptcy, Liquidity and Recession", American Economic Review, May 1981, No. 71 (2), pp. 155-159; F. Mishkin "Financial Policies and the Prevention of Financial Crises in Emerging Markets Countries", NBER Working Paper, 2001, No. 8087; P. Krugman, "Balance sheets, the transfer problem and financial crises", 1999, mimeo.

[60] This analytical framework was presented by James Tobin, "The Commercial Banking Firm: A Simple Model", Scandinavian Journal of Economics, 1982, No. LXXXIV, 4, pp. 4-23.

where: ndp = net defensive position per unit of deposit.
r = coefficient of legal reserve requirement.

Equation (21) indicates that the net defensive position is equal to the lending capacity (1 - r) plus the difference between equity and loans and investments per unit of deposit. When the negative net defensive position (ndp) is positive, the banks are complying with the liquidity regulations. A negative (ndp) means that the reserve requirements are not being fulfilled.

The decision as to the level of the net defensive position in a point in time is part of the portfolio management of the bank. This means that the intermediary takes into account the cost-benefit evaluation between the expected revenues from allocating the funds to loans and other investments, and the expected costs of facing liquidity distress for not holding enough liquid assets. Accordingly, an optimal allocation is reached when the expected marginal revenues on long-term assets equal the expected marginal costs of being illiquid. Alternatively, an optimal liquidity position is reached when the ratio of the bank liquidity premium - lending minus deposit rates - to its 'penalty' rate for being short in liquidity is equal to one[61]. When this is achieved, the bank reaches the optimal, expected utility-maximising deposit and loan rates or, in other words, the optimal rate of financial spread[62].

The degree of the liquidity risk depends on the (ndp) held by the financial intermediary. When this is positive, the probability of a bank being illiquid in the next period is low and, therefore, its liquidity risk is small[63]. However, when the (ndp) is negative, the liquidity risk becomes a positive function of the gap between the defensive assets and those which are required by the monetary authority (see eq. 20). This suggests that the higher the (ndp) of the agent, the higher the expected lending yield must be, so as to compensate for the higher cost for holding 'insufficient' liquid assets.

---

[61] Freixas presents a formal analysis about the optimal amount of banking reserves. X. Freixas and J.C. Rochet, Op. Cit., pp. 228-9.
[62] See T. Ho and A. Saunders, Op. Cit., 1981, pp. 581-600.
[63] So far, it has been assumed that the demand for deposits is stable.

It should be highlighted that the level of deposits and the portfolio composition are intertwined[64]. For a given amount of loans and investments, the net defensive position of a bank changes whenever there is an inflow or outflow of deposits. If variations in the volume of deposits prove to be constant, the bank will have to adjust its volume of long-term assets so as to sustain its previous safety margin. Uncertainty about the future level of deposits explains why a risk-averse agent usually maintains more liquid assets than required by the Central Bank; that is, a positive net defensive position. Thus, cautious portfolio management implies that the net defensive position rises whenever there is an increase in uncertainty in the financial market[65]. On the contrary, a risk-loving agent takes a bolder liquidity stance - lower defensive assets - in the event of increased volatility in the flow of deposits[66].

All this means that the different banking positions regarding liquidity risk in the financial system can be inferred by considering both the *level* and the *evolution* of the (ndp) held by the financial intermediaries. Based on this approach, an empirical assessment was undertaken to evaluate the attitude towards this kind of risk followed by the Argentine banks between 1977 and 1981. In an attempt to verify the existence of speculative behaviour and excessive risk taking within the financial sector, this analysis focuses on the liquidity management of the main institutions which collapsed giving rise to the financial crisis of 1980[67]. That is to say, the liquidity risk positions of three banks - *Banco Internacional*, *Banco de Los Andes* and *Banco de Intercambio Regional* - are contrasted with that of the financial system as a whole. To make an appropriate comparison, the liquidity management of the aggregate financial system is taken net of the effect of these three banking institutions.

---

[64] This interaction is what helps to explain the need for a simultaneous setting of deposit and lending rates, as modelled in the previous Section.

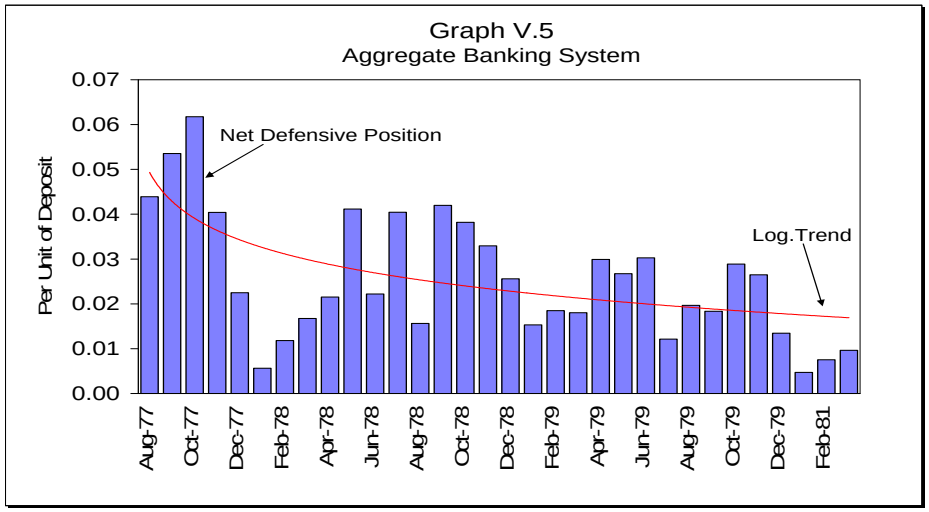
[65] Here, a higher uncertainty means a higher interest rate risk faced by the bank.

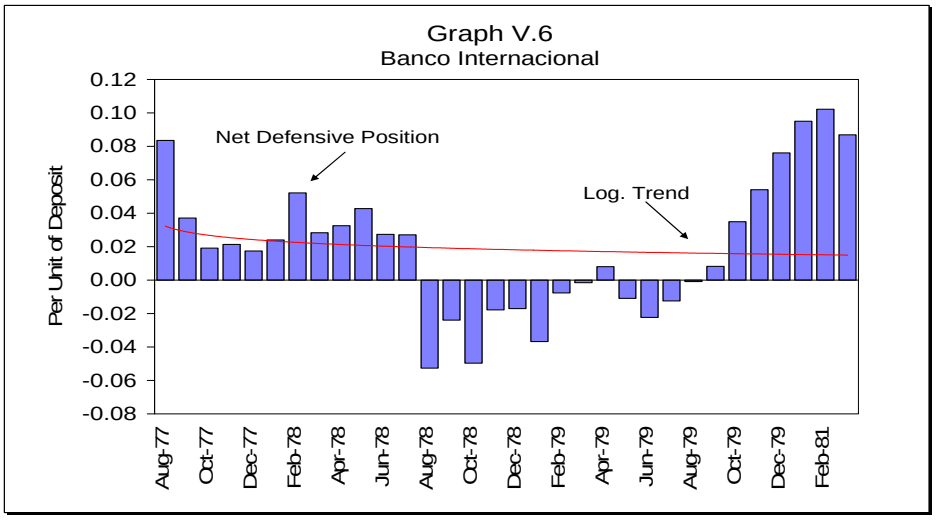
[66] The effect on banking reserves of an increase in uncertainty regarding deposit withdrawals is analysed by T. Ho and A. Saunders, Op. Cit., pp. 583-88; and E. Prisman, M. Slovin and M. Sushka, "A general model of the banking firm under condition of monopoly, uncertainty and recourse", Journal of Monetary Economics, (1986), No.17 (2), pp. 293-304.

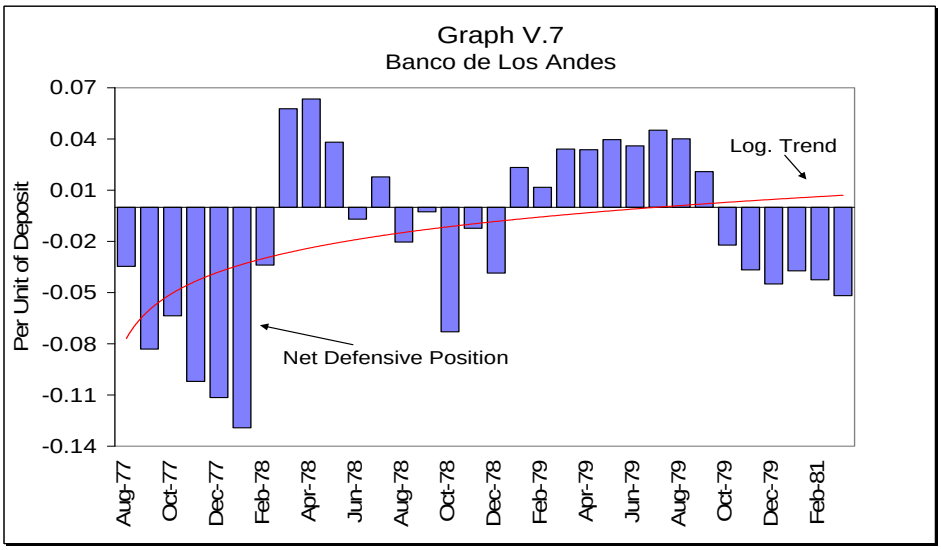
[67] Although the presence of large liquidity risk within the financial system has been suggested by several authors, there is a distinct lack of this kind of studies for the period 1977-81. A notable exception is A. A. Arnaudo and R. Conejero, "Anatomía de las Quiebras Bancarias de 1980", Desarrollo Económico, Jan-Mar 1985, vol. 24, pp. 605-616.

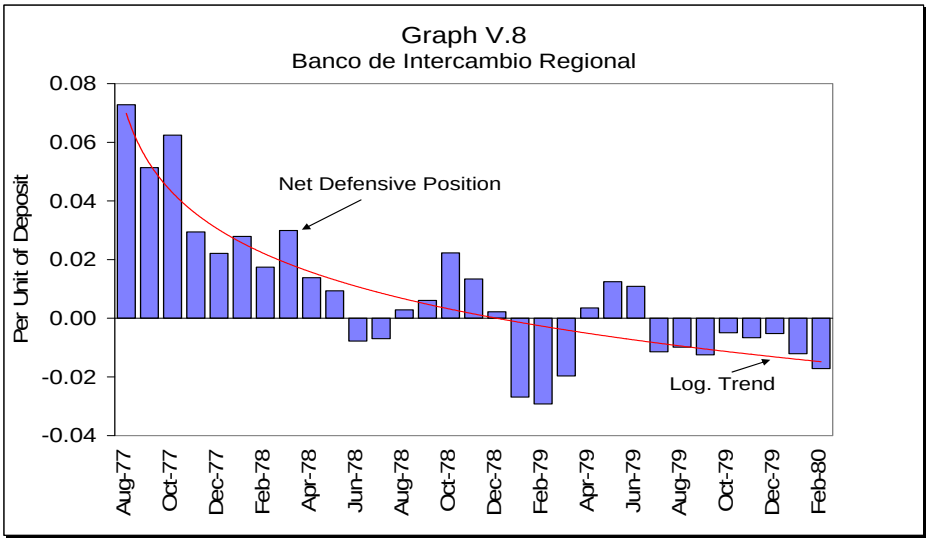
Graphs V.5 - V.8

Net Defensive Position per Unit of Deposit, 1977-81






Source: own construction based on data obtained from the Central Bank of Argentina, Boletín Estadístico, several monthly issues, 1977-81.

The graphs above show the net defensive position per unit of deposit (columns) and its evolution on average - after being adjusted logarithmically (line). The first thing which strikes one is that the aggregate banking system did maintain a positive net defensive position, yet its average level dropped from 5% to less than 2% between August 1977 and March 1981. This reduction in the amount of liquid assets - secondary reserves - occurred in a period in which, the reserve requirements of the Central Bank - primary reserves - were reduced progressively from 45% to 12%[68]. In this context, as observed in Graph V.5; the liquidity risk of the banking sector as a whole increased sharply during these years, as the ratio of short-term assets to total deposits fell from 50% to less than 14%.

It should be noted that the level of secondary reserves held by each of the three banks was much lower than that of the aggregate banking sector throughout the period under study. Furthermore, these agents showed a greater instability in the level of defensive assets which, in turn, resulted in a negative net defensive position for several months.

[68] See Chapter IV, Section 3 for more details on the institutional change regarding reserve requirements of the Central Bank and the establishment of the Monetary Regulation Account (*Cuenta de Regulación Monetaria*).

The intermediaries which were taken over by the Central Bank in 1980 had, therefore, been following a relatively riskier liquidity policy than the rest of the banks.

Attitudes towards the liquidity risk, however, were *not* uniform across these institutions. In effect, judging by the evolution of the net defensive position per unit of deposit on average, the *Banco Internacional* took the most cautious position in relative terms. Although there were periods during which it had a lower level of liquid assets than required, on the whole, this bank did maintain a positive defensive position over these years. More importantly, the level of liquidity of this institution improved markedly from September 1979 on, as shown by the positive and growing net defensive position, which reached about 9% in March 1980 (Graph V.6).

The other two institutions - *Banco de Los Andes* and *Banco de Intercambio Regional* - show marginally the riskiest management of liquidity. Over the first two years, the former tried to regain liquidity so as to improve its weak initial conditions. However, the excess of funds over the requirements of the Central Bank did not last long and, the net defensive position dropped from 5% to -5% between July 1979 and March 1980 (Graph V.7). In the same vein, the BIR presents a sharp deterioration in liquidity throughout the period, as evidenced by the decline in its net defensive position from around 7% in August 1977 to nearly -2% in March 1980 (Graph V.8). With regard to these two institutions, the risk of encountering liquidity shortages increased further from mid-1979 on, when the coefficient of the net defensive positions became negative.

To sum up, the three institutions which were first suspended by the Central Bank in 1980 had taken relatively more risks in portfolio management regarding liquidity than the rest of the financial sector on average. Of these institutions, the *Banco Internacional* is the only one which was *not* encountering problems of liquidity when the monetary authority decided to suspend its operations. However, this is not the case of the *Banco de Los Andes* and *Banco de Intercambio Regional*, where mounting liquidity problems were apparent from mid-1979 on. As previously mentioned in Chapter IV,

Section 4.5, this was recognised by the Vice-president of the Central Bank: “In the last twelve months on various occasions the BIR did not manage to maintain its cash reserves at the minimum required by the law”[69]. It was also revealed that “the liquidity situation of the *Banco de Los Andes* was similar to that of the BIR”[70]. Finally, it should be stressed that this imprudent management existed in a context in which the aggregate amount of liquid assets was deteriorating rapidly and the fragility of the financial system as a whole was rising[71].

[69] Newspaper interview with Alejandro Reynal, La Razón, Monday 31, March 1980, p.7

[70] Newspaper interview with the Secretary of Economic Planning and Coordination Guillermo W. Klein, Clarín, Thursday 29, May 1980. p.12

[71] A macro-financial analysis of the evolution of the fragility/robustness of the aggregate banking sector is given in Chapter IV, Section 5.

## V.6 SPECULATION AND EXCESSIVE RISK TAKING IN FINANCIAL MARKETS

Not only does a higher balance sheet mismatch cause an increase in liquidity risk, it also raises interest rate risk[72]. In turn, a higher interest rate risk may affect the profitability and ultimately, the solvency of the bank. This happens because the lengthening of the maturity gap increases the risk associated with the different sensitivity of the short-term returns on deposits *vis-à-vis* the long-term returns on loans[73]. In the last section, it was mentioned that a financial intermediary sometimes raise the lending rate in an attempt to counterbalance the higher interest rate risk which results from an extension in the maturity gap. This could be an explanation for the fact that the reduction in the net defensive position of the aggregate banking system occurred together with a widening in the margin of financial intermediation from July 1979 on (Graphs V.3 and V.4). Moreover, as suggested earlier, a higher mark-up via an increase in the lending rate may have had a deleterious effect on the *solvency risk* of the financial institutions, since the probability of loan repayment could be negatively affected[74]. This suggests that an assessment of the relationship between liquidity management and the decisions about the margin of intermediation is essential for a thorough understanding of the banks' attitude towards risk. It should be stressed that after an extensive bibliographical search, no study was found on this subject for Argentina.

With this aim, the present analysis focuses on the relationship between the rate of financial spread and the liquidity risk position taken by the financial institutions. It begins by running the model of interest rate decisions developed earlier in this Chapter in Section 4 for the three cases under study: *Banco Internacional*, *Banco de Los Andes* and *Banco de Intercambio Regional*. Following the procedure outlined above, the risk

[72] While liquidity risk is due to the difference in the marketability of the liabilities issued *vis-à-vis* the assets held by the bank, interest rate risk is due to the difference in maturity of its assets and liabilities.

[73] The importance of interest rate changes and their effect on banks' portfolio was recognised early by Samuelson. P. Samuelson, "The Effects of Interest Rate Increases on the Banking Behaviour", American Economic Review, March 1945, pp. 81-98

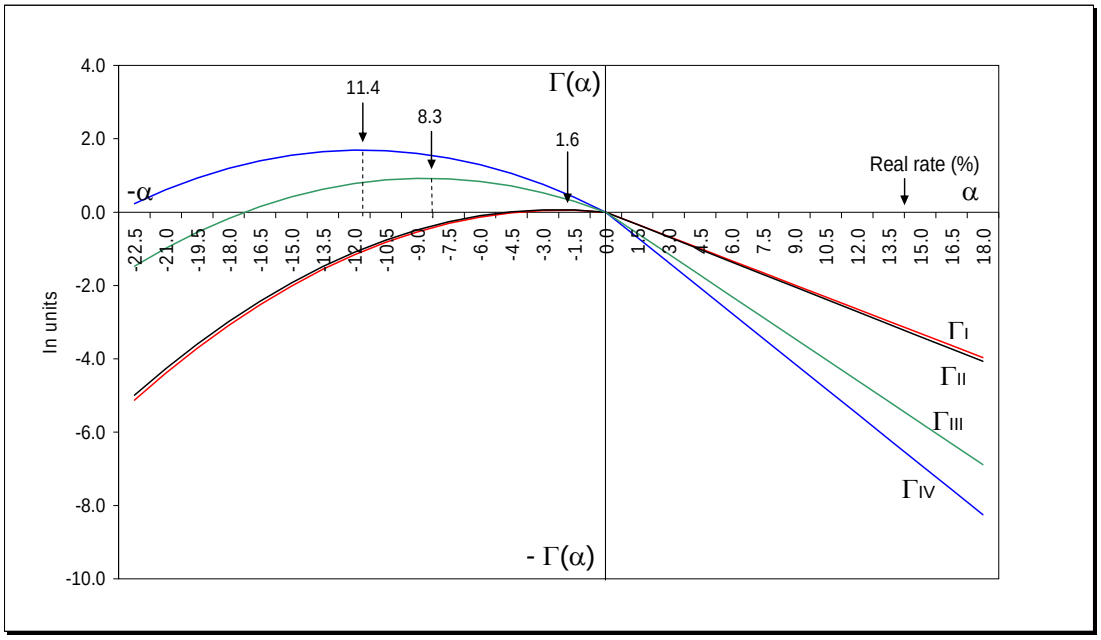
[74] Chapter VI presents an evaluation of the relationship between the lending rate and level of leverage and the probability of loan repayment.

functions of these institutions were estimated for the period August 1977 - February 1980. These estimations of the three banks and that of the aggregate financial system are shown in Graph V.9 as a function of the decision variable ($\alpha$): the difference between the effective rate on deposits and the expected cost of loans[75]. This time, the decision variable ($\alpha$) is expressed as an annual rate in real terms, equivalent to the annualised nominal rate on deposits per month, after subtracting the annual inflation rate on average for this period.

Graph V.9

The Loss/Gain Risk Function, Speculation and Excessive Risk Taking in the Financial Market, 1977-81

(Annual rates in real terms)




Source: own construction based on data obtained from the Central Bank of Argentina, Boletín Estadístico, several monthly issues, 1977-80.

The different locations of these four risk functions are explained by the values of the interest rate elasticity of the demand for deposits - supply of funds from the depositors

[75] Appendix B to Chapter V contains the econometric estimations used to calculate the interest-rate-elasticities for Argentina included in the loss/gain risk function presented in Graph V.5

($\varepsilon_d^S$)[76]. These rates have the following values*:* Financial System ($\Gamma_I$) ($\varepsilon_d^S$=1.6); *Banco Internacional* (($\Gamma_{II}$) ($\varepsilon_d^S$=1.7); *Banco de Intercambio Regional* ($\Gamma_{III}$) ($\varepsilon_d^S$ =1.95) and *Banco de Los Andes* ($\Gamma_{IV}$) ($\varepsilon_d^S$ =2.2).

Graph V.9 shows that the expected nominal rate on deposits was ***overestimated*** in each of the four cases under study. This overestimation, however, is higher in the case of these three single institutions than in the aggregate banking system (net of these banks); that is to say, ($\Gamma_I$) < ($\Gamma_{II}$) < ($\Gamma_{III}$) < ($\Gamma_{IV}$). Moreover, of these three banks, those that were less cautious in the management of liquidity, are those that show the higher overestimation of the rate on deposits. In effect, the *Banco Internacional* presents the most careful management of the net defensive position and was also the institution with the relatively lowest overestimation of the rate on deposits ($\Gamma_{II}$) (Graphs V.6 and Graph V.9). On the other hand, both the *Banco de Intercambio* and *Regional Banco de Los Andes* exhibited the most reckless stance in connection with liquidity and they also showed the highest rate of overestimation of the expected cost of funds, shown in the loss/gain risk functions ($\Gamma_{III}$) and ($\Gamma_{IV}$) respectively (Graphs V.7 and V.8; and V.9).

More importantly, it can be proved that this positive correlation recognised between the liquidity risk and the degree of overestimation of the rate on deposits is also a cause-effect relationship. In the model of interest rate decision, it is possible to identify ***if*** and to ***what*** extent the income, capital and the liquidity effects contributed to the overestimation of the deposit rate. By substituting the corresponding parameters in the model equations (1"); (2") and (4"), it can be demonstrated that the difference in the behaviour of these three single institutions and the aggregate financial system comes down to their attitude towards liquidity risk[77]. This is so, as the only difference between the four risk functions shown in Graph V.9 is the elasticity rate of the demand for

[76] The rest of the functional parameters are the same as used in Section V.4

[77] The liquidity risk is due to the uncertainty about the amount of deposits that the bank will hold in the next period, after the market of deposits adjusts to a new equilibrium position. See Section V.4.1

deposits (supply of funds to the bank) and, this parameter is found only in the equation which measures the 'liquidity effect' in banks.

Moreover, in the last section, it was shown that the difference between the *ex-ante* and *ex-post* rates of mark-up of banks is explained by the overestimation of the rate on deposits. Therefore, the hypothesis suggested earlier is also borne out in the case of the three single institutions: the financial agents raised the *ex-ante* rate of spread as a way of protecting themselves against possible problems of liquidity in a context in which the uncertainty about the demand for deposits (supply of funds) was rising and, the ratio of liquid-assets/total-deposits was declining. As shown earlier in Section 4.2, this means that the banks overestimated the cost of deposits so as to increase their rates of mark-up. This means that the higher liquidity risk for holding a lower level of net defensive assets in those banks was to be compensated with a higher financial spread. It should be stressed that with an enlargement of the *ex-ante* rate of mark-up, the banks obtained more room to manoeuvre by raising the nominal rate on deposits, so as to help them to retain or to attract new funds in the event they needed to do so.

In this study, the overestimation of the interest rate was undertaken using as a benchmark the rate on deposits on average that prevailed in the banking system. Table V.3 summarises the main outcome of this subsection and presents the estimations of two - the hypothetical and the effective - rates of spread calculated as the difference between the lending and deposit rates per annum in real terms over the period July 1977 - March 1980. It also shows the interest rate premium over the real rate on deposits that some institutions paid on average throughout those years.

Table V.3

Spread and Premium Paid over the Rate of Deposits

in Real Terms on Average: Jul. 1977 – Mar. 1980

(Annual rates)

| Financial Institutions | Financial Spread | | Premium over the Rate of Deposits |
|---|---|---|---|
| | A | B | C = A – B |
| Fcial. System (on aver.) | [13.0 – (-1.6)] = 14.6 | [13.0 – (-1.6)] = 14.6 | 0 |
| Bco. Internacional | [14.2 – (-1.6)] = 15.8 | [14.2 – (-0.2)] = 14.4 | 1.4 |
| Bco. de Interc. Regional | [20.8 – (-1.6)] = 22.4 | [20.8 – 6.9] = 13.9 | 8.5 |
| Bco. de Los Andes | [24.6 – (-1.6)] = 26.2 | [24.6 – 10.1] = 14.5 | 11.7 |

Source: own construction based on data obtained from the Central Bank of Argentina, Boletín Estadístico, several monthly issues, 1977-81.

Departing from the assumption that all financial agents paid the average market rate on deposits, it is interesting to undertake the following exercise: what would the rate of mark-up have been that would have compensated for the different liquidity risks taken by the banks? Column (A) in Table V.3, shows the result of this simulation. It should be noted that while the spread of the aggregate banking system in real terms averaged 14.6% per annum; this margin should have reached a rate of 15.8%; 22.4% and 26.2% respectively in the three cases under study: *Banco Internacional*; *Banco de Intercambio Regional* and *Banco de Los Andes*. This happened, as the optimal for the banks would have been the following overestimation of the nominal rate on deposits: Aggregate Financial System 6.2*%; Banco Internacional* 7.4%; *Banco de Intercambio Regional* 14.4% and *Banco de Los Andes* 18.2% per annum on average over the period July 1977-March 1980[78].

Taking into account that these rates of financial spread are average values for that period, they need to be weighted with the conclusion reached earlier in this Chapter, Section V.4.2: from mid-1979 on, the margin of intermediation rose *pari-passu* with the increase in the general economic uncertainty. Therefore, in early 1980, at the moment that these

[78] These estimations are the equivalent to the annualised nominal rate of deposits per month obtained for the loss/gain functions presented in Graph V.9

banks went into liquidation, the rate of financial spread must have been even more striking than the figures presented above.

The hypothesis outlined earlier is once again corroborated: the financial intermediaries who took a relatively more risky position in connection with liquidity are those which show a higher hypothetical rate of spread[79]. By the same token, since these estimations were carried out assuming that all banks paid the same rate on deposits, this result can only be explained if the less cautious financial agents had priced their credits at a higher rate. In effect, the *Banco de Intercambio Regional* and *Banco de Los Andes* would have had to charge an annual lending rate of 20.8% and 24.6% in real terms on average; while the *Banco Internacional* and the rest of financial system as a whole would have had to charge much lower rates: 14.2% and 13% respectively during the period under study (Colum A in Table V.3). In practice, the different lending rates that a bank charges depend on both the credit and the borrower's risk and are *not* usually revealed to the public. These figures are estimates based on the result of the model of interest rate decisions outlined above.

So far, the conclusion which can be drawn from this simulation exercise is: the higher the *interest rate risk* which resulted from the worsening of the net defensive position, the wider the financial spread needed to be in order to sustain the previous banking risk. Finally, it should be stressed that this is a counterfactual analysis and thus, it shows *not* what in fact happened but, what the rate of mark-up would have been had all the intermediaries paid the average nominal rate on deposits which prevailed in the market, given the liquidity risk that they were assuming.

Column (B) in Table V.3 shows the financial spread effectively charged by the banks. This was calculated as the difference between the *ex-post* deposit and lending rates in real terms. As observed, differences in the *ex-post* rate of mark-up were *not* that important among the banks. Where they differed markedly was in the rate on deposits

[79] See Section V.4.2 pgs. 42 and 43

that they offered to the public. For instance, the *Banco Internacional*; *Banco de Intercambio Regional* and *Banco de Los Andes* paid a nominal return of 133%; 150% and 157% per annum respectively. The average rate for the system as a whole was 130%. This means that they paid a premium over the average market rate on deposits in real terms of 1.4%; 8.5% and 11.7% per year respectively over the period July 1977-March 1980 (Column C, Table V.3). With this data, the first temptation is to proclaim a relationship between the interest rate premium paid by the banks and the liquidity risk that they were assuming. This has yet to be proved.

Graph V.9 depicts the 'optimal' deposit rate, which has been estimated taking into account the different risk positions assumed by the banks. It has been found that the more vulnerable the liquidity position of the bank, the higher the rate on deposits that maximises its risk function. Additionally, from these estimations, the 'optimal' interest rate in real terms that the *Banco Internacional*; *Banco de Intercambio Regional* and *Banco de Los Andes* should have paid over the average market rate on deposits is respectively 1.6%; 8.3% and 11.4% points per annum. As observed, these rates are very close to the premium which was in fact paid by these institutions and, therefore, the conjecture suggested above is fully verified (see the last column of Table VI.3)[80]. That is to say, the interest rate premium paid by these three banks is what in practice compensated for the different liquidity risks that they had assumed.

It is now possible to integrate the counterfactual assessment shown above in Table V.3 of the rate of spread (Column A) with that of the financial mark-up which was effectively charged by the banks (Column B). The former shows, for a given deposit rate, ***what*** the increase in the rate of mark-up of the bank is which compensates for the extra-risk of liquidity derived from a reduction in the net defensive position. As stated above, a bank reaches an optimal portfolio allocation when its expected marginal revenues on assets equal its marginal costs of being illiquid. Hence, if there is an increase in the cost due

[80] These estimations are corroborated by an empirical assessment of the interest rate premium that these banks did actually pay to depositors. See A. A. Arnaudo and R. Conejero, Op. Cit., (1985), pp. 606-8.

to a reduction in the liquidity position, the bank should raise the lending rate which, in turn, will result in a wider spread. With a greater degree of freedom in this margin, the financial agent can raise the rate on deposits so as to retain or to attract new funds in the event they need to do so (Table VI.3 Column A).

Column (B) in Table V.3 reveals ***how*** the banks under study actually managed the issues of liquidity and interest rate setting in the markets of deposits and loans. It shows ***ex-post*** that these banks preferred ***not*** to hedge the extra-risk resulting from an illiquid position with a higher rate of spread; but to pay a premium over the market rate on deposits with the aim of attracting new funds. The consequence of this was that, over the period July 1977-March 1980, the amount of deposits in real terms rose on average 137% per year in the financial system as a whole; while deposits in the *Banco Internacional*; *Banco de Intercambio Regional* and *Banco de Los Andes*, grew by 169%; 315% and 465% respectively.

There is no doubt that the inflow of new deposits towards these banks was instrumental in sustaining a policy of low or negative net defensive position. This helps to explain why the banks with a relatively less liquid portfolio - *Banco de Intercambio Regional* and *Banco de Los Andes* - were those which offered the highest premium over the average market deposit rate. It was recognised that "the *Banco de Intercambio Regional* paid extremely high deposit rates and allocated loans to firms that were undergoing serious financial difficulties due to the general economic situation"[81]. In addition, "the *Banco de Los Andes* was one of the fastest growing institutions, it went from ninth among private banks to second place in the ranking in terms of deposits in the period 1978-79. The amount of its deposits rose sharply, attracted by the highest deposit rates in the market"[82].

[81] Newspaper report, Clarín, Saturday 29, March 1980, p. 5.
[82] Magazine report, Convicción, Economía, Sunday 27 April 1980, p. 12

The great difference of attitude towards scale and kind of risk that the *Banco de Intercambio Regional* and *Banco de Los Andes* assumed compared with that of the *Banco Internacional* and the rest of the financial system on average confirms the hypothesis that these intermediaries were assuming too much risk over those years[83]. Given the importance of the first two institutions within the banking system (the first and second private banks at the beginning of 1980), the way they managed liquidity risk certainly had a negative impact on the functioning of the banking system. In effect, the decision to be short in liquid assets required the setting of relatively high deposit rates. As mentioned above, these rates accelerated the growth of these institutions, since a large amount of deposits was re-directed towards those banks which were assuming an excessive level of risk. The increase in the liquidity risk combined with the misallocation of resources caused the financial system as a whole to become more fragile.

The extremely high rates on loans in real terms that the *risk-loving* banks charged - *Banco de Intercambio Regional* and *Banco de Los Andes* - is the counter face of the interest rate premium that they paid on deposits (see Table VI.3). However, as argued earlier, the policy of raising the lending rate so as to counterbalance the extra risk derived from an increase in the deposit rate, would have a negative effect on the *quality* of loan allocation. This is so as risk-averse borrowers, those who are less likely to default, were not prepared to borrow at these rates and, therefore, went elsewhere (adverse selection). At the same time, less trustworthy borrowers came to obtain funds offering potentially more profitable and consequently, riskier projects (incentive effect). This had a negative effect on the loan-risk distribution of the banks[84].

These two factors - the drop in *quality* of the borrowers and investment projects due to high and rising lending rates - exacerbated the widespread problem of non-performing

[83] It was affirmed that out of these three institutions, "the *Banco Internacional* has the best prospects due to its structure". Newspaper interview with the Secretary of Economic Planning and Coordination Guillermo W. Klein, Clarín, Thursday 29, May 1980. p.13.
[84] This point is further analysed in Chapter VI.

loans faced by these two banks at the beginning of 1980. It was estimated that in February, the BIR had bad debts amounting to about 40% of its total loans (US$ 300 million) and; that it was losing approximately US$ 15 million per month (2% of its stock of loans)[85]. This situation was recognised by the monetary authority: … "the BIR showed several problems in the relationship between capital and deposits as well as in the percentage of loans in arrears. Recently, although the amount of deposits against capital was almost at the limit allowed, what particularly worried us was the fact that by paying excessively high interest rates on deposits it had a lot of difficulty making loans at high rates. That is, they were paying out a lot and this apparently forced them to make riskier loans - low quality allocations - in order to meet their needs[86]. As analysed in Chapter IV, this statement confirms that the Central Bank had severe problems of regulation and supervision which, in turn, enabled banks to behave recklessly and speculatively in those years[87].

For some authors, the existence of a deposit guarantee is what explains the excessive risk taking and the speculative behaviour on the part of the banking sector[88]. It was believed, therefore, that the interest rate premium paid by some banks was possible because the depositors did *not* discriminate against the risk taken by the different institutions as they assumed that their savings were 'state-guaranteed' anyway. Although the establishment of deposit insurance may have contributed - to some extent - to worsening the problems of moral hazard between depositors and bankers, it does not explain some issues identified in this assessment. Lack of incentives for depositors to screen the banking risks could have benefited some institutions, yet the increase in

[85] A similar pattern is noted in the case of the *Banco de Los Andes*. La Prensa, Tuesday 1, April 1980, p.4.
[86] Newspaper interview with the Vice-president of the Central Bank, Alejandro Reynal , La Razón, Monday 31, March 1980, p. 7.
[87] The subject of banking regulation and supervision goes beyond the scope of this Chapter and was analysed previously in Chapter IV, Section IV.4.5.
[88] This argument was advanced by Adolfo Diz (ex-President of the Central Bank in the period 1976-81; and by Roberto Alemann (ex-Minister of Economy in the first half of 1982) in personal interviews with the author. See also, R. Alemann, Boletín Semanal, Ministerio de Economía de Argentina, May 10, 1982; R. B. Fernández, "La Crisis Financiera Argentina, 1980-82", Desarrollo Económico, Oct.-Dec 1983, vol. 23, No. 89, pp. 79-97; R.B. Fernández, "La Crisis Financiera Argentina, 1980-82. Réplica", Desarrollo Económico, Oct.-Dec 1983b, vol 23, No. 91, pp. 456-459 and; A. C. Diz, "La experiencia monetaria y bancaria de la decada del 70", Politica Monetaria y Banco Central. La Experiencia de los Anos Ochenta, Valores en la Sociedad Industrial, (Sept. 1994), Ano XII No. 30, pp. 3-26.

the rate of spread was a phenomenon seen throughout the entire financial system from mid-1979 on. (see Section V.4). This was so because, as explained in Chapter IV, in a highly inflationary economy like that of Argentina the problems of information between debtors and creditors - depositors/bankers and bankers/lenders - are due to differences in the estimation of inflation and changes in relative prices in different economic sectors and this can hardly be attributed to the existence of a deposit guarantee in banks. Thus, the inconsistency of the banking reform of 1977 lies mainly in the decision to free the financial market in a highly unstable macro-economic scenario without adequate banking regulation and supervision and to a much lesser extent, in the implementation of that policy reform together with a state deposit guarantee.

The main findings of this section can be summarised as: *no* signs of speculative behaviour are found in the *Banco Internacional* if one looks at its liquidity performance over the period under analysis. This is the reason why this institution did not pay a large premium over the average market rate on deposits and, therefore, was not forced to charge extremely high lending rates. Why then was this bank liquidated by the monetary authority together with the other two institutions ?. Here, the problems were *not* due to the bank's eagerness to make large profits quickly but, to the high proportion of loans to the conglomerate which owned the bank - the *Grupo Sasetru*. This was pointed out by the Secretary of Economic Planning and Coordination: "this bank operated normally until the end of 1979 but it started to lend in excess to sister companies, which then began to face problems of solvency"[89]... In the case of *Sasetru* group, about US$ 1,000 million were non-performing loans and, around 15% of them had been granted by the *Banco Internacional*" (35% of its total credits). This is another example of the deficiency of the Central Bank's regulatory and supervisory policies.

The situation was quite different in the case of the *Banco de Intercambio Regional* and *Banco de Los Andes*. They followed a pattern of speculative behaviour with regard to the interest rate and management of their portfolios. These financial intermediaries

[89] Newspaper interview with Guillermo W. Klein, Clarín, Thursday 29, May 1980, p.13

took a highly risky liquidity stance with the aim of allocating the maximum amount of loans at the highest possible rate. Very high deposit and lending rates were set as a way of protecting themselves against possible problems of liquidity. This strategy proved effective in keeping an operative level of liquid assets in the short-term but, at the expense of their solvency in the long-term. When this problem became public knowledge, the practice of obtaining funds by raising the deposit rate began to lose its effectiveness[90]. In street interviews several individuals said that they preferred to withdraw their money and to re-deposit it into other institutions, despite the fact that the *Banco de Los Andes* offered rates between 4% and 5% higher than other banks on deposits of 30 and 60 days[91]. The monetary authority realised that the problems of these banks was not only one of liquidity but also of solvency and thus, the decision was taken to shut down their operations in early 1980.

[90] "The problems began in the summer of 1979-80 and worsened in the months of February and March when it was noted that in spite of paying high interest rates the bank was ***not*** managing to replace the amounts it had to pay out with new deposits. Newspaper interview with the Vice-president of the Central ank, A. Reynal, La Razón, loc. cit., p. 7

[91] Newspaper report, El Cronista Comercial, Monday 31, March 1980, p. 4

## V.7 CONCLUSIONS

Large and volatile rates of financial spread in both nominal and real terms were a distinctive feature of the banking sector of Argentina after the reform of 1977. At the beginning, this was mainly the result of the cost implied by the high reserves required by the Central Bank to prevent a rapid monetary expansion. With the reduction in the reserve requirements, the financial margin declined progressively throughout the year 1978 and the first half of 1979. Thereafter, the widening of the spread was entirely due to the desire of banks to increase profits as much as possible by raising the mark-up (gross financial yield) which reached a striking 22% per annum in the first semester of 1981.

The first conclusion to be drawn is that the growing rate of mark-up seen in the banking sector from mid-1979 on was the result of an increase in the level of systemic risk in Argentina. This, in turn, was due to the possibility of large and unexpected short-term deposit withdrawals based on the expectation of a high volatility in the return on assets, as the prospects for the economy were becoming more and more uncertain. The reaction of savers to this was to shorten the maturity of their deposits, which led to a higher balance sheet mismatch in banks. Although the financial agents followed suit and shortened the maturity of their loans, this was not enough to offset a rise in the liquidity risk. In an attempt to counterbalance the extra risk, the banks increased the margin of intermediation by raising the rate charged on loans. This gave them the leeway to raise the rate on deposits in order to retain or to attract new deposits *should* they need to do so, without suffering a misalignment between the price paid and charged for the funds. However, an increase in the lending rate would have a knock-on effect on the solvency of the banking institutions as the level and the quality of their borrowers' net worth was negatively affected. In effect, the short-term problems of liquidity which had emerged in the financial system at the end of 1970s had been transformed into long-term problems of solvency by the end of the year 1980.

Besides the evolution of the systemic risk (*exogenous factors*), there were other reasons inside the banks (*endogenous factors*) which helped to increase the financial fragility and hastened the collapse of the Argentine banking system in 1980-81. Indeed, it has been proved that there were cases of speculative behaviour and excessive risk-taking within the banking sector, which had a deleterious effect on the financial structure. This was verified in a micro-economic analysis of the behaviour of two financial intermediaries: the *Banco de Intercambio Regional* and the *Banco de Los Andes*. These banks followed an extremely risky policy of portfolio management which led, in the short-term, to problems of liquidity. To pre-empt this, they tried to obtain more deposits by offering a premium above the average market rate. This was very effective in generating new funds, which brought about a reduction in the liquidity risk and a substantial increase in resources which could be allocated. By the same token, the lending policy of these banks was extremely risky, paralleling the way they managed the liability side. This shows that the aim of maximising the *amount* and the *rate* of lending was part of the logic of paying a premium above the market rate on deposits. Furthermore, the highly illiquid position of these banks also helps to explain their eagerness to channel the funds obtained as deposits (short-term liabilities) into assets of a longer maturity (loans). Additionally, extremely high lending rates in real terms were charged in an attempt to maximise the rate of interest at which these financial intermediaries could allocate all available funds.

This attitude towards risk assumed by the *Banco de Intercambio Regional* and *Banco de Los Andes* had a negative impact on the risk distribution of banking sector as a whole. On the one hand, the practices used by these banks to attract funds gave rise to a re-distribution of resources within the financial system. This is shown by the dramatic growth in their market share, by the end of the 1970s these institutions had risen to first and second places in the ranking of deposits respectively. On the other hand, the need to allocate quickly a rapidly-growing amount of credits and the desire to do so at high lending rates was to have secondary effects on the *quality* of projects and borrowers that they financed. In this way, the probability of loan repayment declined for the financial system as a whole.

It must be stressed, however, that *not* all the banks which ended up in trouble had been guilty of the same sins. There were cases where the weakness of the bank was the result of a large concentration of loans to firms belonging to the economic group which owned the institution in question. This is shown in the study of the *Banco Internacional*. This intermediary did not take risks either in relation to the management of liquidity or to the setting of the deposit and lending rates. Its problems were instead associated with that of ownership which, in turn, led to a deficient distribution of risk within its portfolio. In other words, as it was part of the *Sasetru* group, the *Banco Internacional* could not pursue an independent policy and consequently, a large proportion of its credits were allocated to sister firms. With too many eggs in the same basket and, with the performance of these companies deteriorating sharply due to the economic recession, the Central Bank decided the intervention of this institution in the first half of 1980.

In short, the model developed in this study confirms that the interaction of macro- and micro- economic factors plus institutional failures caused the banking crisis of 1980. The first account for the growing fragility of the country's financial structure, in an economy with large macro-economic imbalances. This situation together with a lack of - or highly deficient - banking regulation and supervision by the Central Bank, created a fertile ground for cases of *excessive* risk-taking and *speculative* behaviour inside the financial system. This, in turn, brought about two interrelated effects: on the one hand, it speeded up and worsened the macro-financial conditions because the risk distribution of the banking system changed as a whole and; on the other hand, it caused the failure of some institutions, which triggered a far-reaching financial crisis. Given the size of these banks and the fact that they were paying the highest rates on deposits, the news that they had been taken over and closed down by the monetary authority, created panic in the banking system and a further weakening of the financial structure.

# CHAPTER VI

# ECONOMIC CYCLE, BORROWER FRAGILITY AND FINANCIAL STABILITY

## VI.1 INTRODUCTION

This Chapter presents a study of the financial health of the non-financial private sector and its effects on the banking system over the period of financial liberalisation, 1977-81. Previously, it has been suggested that the problems in the financial system lay ultimately in the inability of many debtors to fulfil their obligations with banks. This can normally be verified by looking at the amount of non-performing loans in banking institutions. This information, however, is *not* available for Argentina for the years under evaluation. What has been done, therefore, is to examine the changes in the level of indebtedness of the business sector *vis-à-vis* its capacity to repay debt in order to identify the extent and the gravity of problems of borrower distress and their consequences for the soundness of the banking system.

Debt is a contract which entails a promise to repay the principal and interest on a loan at a specified time in the future, while the creditor has the right to seize the collateral in the event of default. This is not a spot transaction and thus, a debt contract always bears an associated risk: the possibility that the promise will not be fulfilled. As the future is uncertain, the number and nature of *all* possible contingencies are clearly very large, and some of them cannot be identified *ex-ante*. This suggests that the cost of negotiations regarding the course of action to be taken in each circumstance may well be prohibitive. Accordingly, when the probability of such occurrence is small and the cost of reaching an agreement is high, it may pay to leave the resolution of the issue unspecified with the possibility of renegotiating the contract, should that becomes necessary.

As discussed in Chapters II and V, the existence of asymmetric information also causes problems for the parties involved in a contractual arrangement. Asymmetric information exists due to the division of tasks and specialisation. Collecting information from independent sources is costly and there is no reason to believe that informational asymmetries can be reduced otherwise. For instance, in the case of financial agents, to

be fully informed about a specific industry (e.g. steel) would require that a bank become a manufacturer (e.g. steel producer), a condition that would undo the specialisation of activities that is essential for the efficiency of the economic system. With informational gaps, individuals have the incentive to use private information for their own benefit in two different ways: one, when there is information and knowledge which is not *voluntarily* revealed before the contract is signed in order to obtain more favourable terms; and two, when one of the parties behaves differently following the signing of the agreement to benefit himself. That is to say, the practices of 'hiding information' and 'hiding action' as a result of asymmetric information are what make contracts *incomplete*.

Following an asymmetric information approach, this evaluation deals with the interaction between the financial structure of the business sector and the level of economic activity on two levels of des-aggregation: from a macro-financial perspective, special attention is given to the evolution of the degree of financial fragility by looking at the variations in the liquidity and solvency of the non-financial private sector over the economic cycle. The informational dimension of the debtor-creditor relationship is emphasised to stress how changes in the economic environment exacerbated the problems caused by asymmetric information in the credit market and how these, in turn, affected the quality of the financial intermediation process. From a micro-financial viewpoint, the financial structure of a sample of Argentine firms is studied with the aim of identifying the causes and implications of changes in the level of corporate fragility.

The rest of this Chapter is organised as follows. Section two presents a macro-economic analysis of the vulnerability of the non-financial private sector and its effects on the borrower-lender relationship. This is an evaluation of the levels of liquidity and solvency and changes in the financial risks faced by this sector as a whole over the economic cycle. In section three, the financial structure and the economic performance of the business units are studied at a corporate level using a sample of firms. Section

four deals with the problem of distress borrowing and its consequences for banks in the light of the findings of the previous sections. Section five presents the conclusions.

## VI.2 FINANCIAL STRUCTURE AND ECONOMIC CYCLE

Periods of economic booms followed by deep and prolonged recessions are usually the cause of widespread debtor distress. Borrower indebtedness increases when there is a rosy economic outlook, as debtors expect that future cash-flows will be sufficient to meet their obligations. Lenders, in turn, see an opportunity to obtain returns in a scenario in which there is a high probability that loans will be re-paid on time and, should distress borrowing occur, the assets used as collateral will be easily marketable at a high value. In contrast, when a deep economic contraction occurs, the situation of borrowers worsens as the expected cash-flows and the 'return on assets' cannot be achieved. Borrower failure can lead to cash-flow inadequacies for creditors who may, in turn, pass this on to other economic units, thus spreading the initial negative financial effect. This can produce a demand contraction in product and labour markets, further worsening the financial positions of both borrowers and creditors. In this scenario, the possibility of a massive forced liquidation of assets increases, and this could diminish the realisation value of assets given as collateral. All this suggests that aggregate problems of financial distress are not independent of what has taken - or is taking - place in the real side of the economy. To quote Benjamin Friedman ''… for most borrowers, however, including individuals as well as businesses, both the size of the cash-flows and the value of marketable assets depend to a great extent on prosperity or recession in the economy at large''[1].

The above seems to be a good description of what happened in Argentina over the years 1977-81. Indeed, the *credit boom* generated by financial deregulation resulted in problems for banks in a period in which the level of activity was falling. In this context, as emphasised by Adolfo Buscaglia, ''the origin of the increased financial risk lay in the virtual inability of many businessmen to pay off their debts with banks, in a scenario in which corporate assets were becoming less marketable. Many companies had been

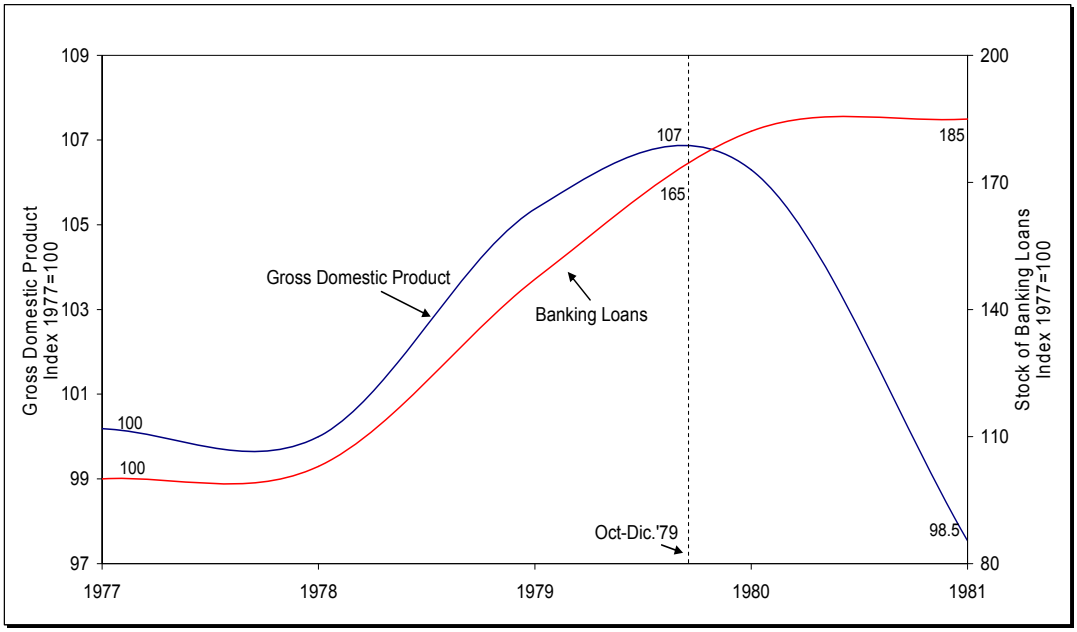
[1] B. Friedman, "Debt and Economic Activity in the United States", in The Changing Roles of Debt and Equity in Financing U.S. Capital Formation, B. M. Friedman (ed.), Chicago, 1982, pg. 45

refinancing their debts with banks with the aim of paying them off in the future when their business improved"[2]. The present analysis is an attempt to verify this real-financial interaction by looking at the relationship between the level of activity and the evolution of the indebtedness of the non-financial private sector with banks between 1977 and 1981. Graph VI.1 depicts the indices of the gross domestic product (income) and of the stock of banking credits granted to the non-financial private sector (debt).

Graph VI.1

Total Output and Stock of Banking Credits, 1977-81

(Index 1977 = 100)




Source: own estimation based on information of the matrix of assets and liabilities for Argentina calculated in Chapter IV with data obtained from the Central Bank. The Central Bank of the Republic of Argentina, Boletín Estadístico, monthly issues (1977-81).

The stock of credits given by banks to the business sector and the level of output followed a similar pattern between April 1977 and August 1979 (coefficient of correlation of 0.74)[3]. This high positive correlation occurred in a period in which there was one period of short

[2] Newspaper article by Adolfo Buscaglia, Crisis en el Sistema Financiero, La Prensa, 24 April 1980, p.10

[3] These estimations were calculated using quarterly figures taken from the matrix of assets and liabilities for Argentina presented in Chapter IV based on data obtained from the Central Bank of Argentina, Boletín Estadístico, several monthly issues, 1977-81.

and moderate recession, from the third quarter of 1977 to the second quarter of 1978; and one phase of expansion, from the second quarter of 1978 to the second quarter of 1979. Over these three years, the level of economic activity went up by 5% and the aggregate level of indebtedness of the non-financial private sector with banks rose by about 45%. This caused an increase in the debt/income ratio of this economic sector by more than one third; that is, from an index of 100 in 1977 to 135 in August 1979. From then on, the picture changed and the evolution of the variables depicted above diverged: the level of output underwent a rapid decline whereas the indebtedness of the private sector as a whole kept rising. The index of gross domestic product which had reached a value of 106 in the third quarter of 1979, had dropped below 98 at the end of 1981. At the same time, the index of bank loans rose from 100 to 145. As a result, the debt/income ratio jumped from 140 in the second quarter of 1979 to 180 in first quarter of 1980 and reached 231 at the end of 1981[4].

This dis-adjustment between the level of indebtedness and the capacity to repay debt may have caused financial problems for the non-financial private sector from early 1980 on. This conjecture, however, cannot be verified by considering *only* the debt-income ratio, while ignoring the asset side of the balance sheet. Benjamin Friedman stressed this point by saying that the degree of financial fragility is related not to the *aggregate* level of banking loans in the private sector as such, but to the *distribution* of assets and liabilities among agents and enterprises. It depends on whether the borrowers hold both the amount and the right kind of assets to ensure the re-payment of their debts in the event of a fall in their income. In his words, ‘‘their ability to do so depends on the income they will receive and on the assets they will have available to liquidate, if doing so becomes necessary’’[5]. This means that financial solvency is about the balance between the value of assets and debts and consequently, measurements which only take into account the liability side are *not* totally reliable when assessing financial risks. An assessment of the full balance sheet position is, therefore, needed in order to

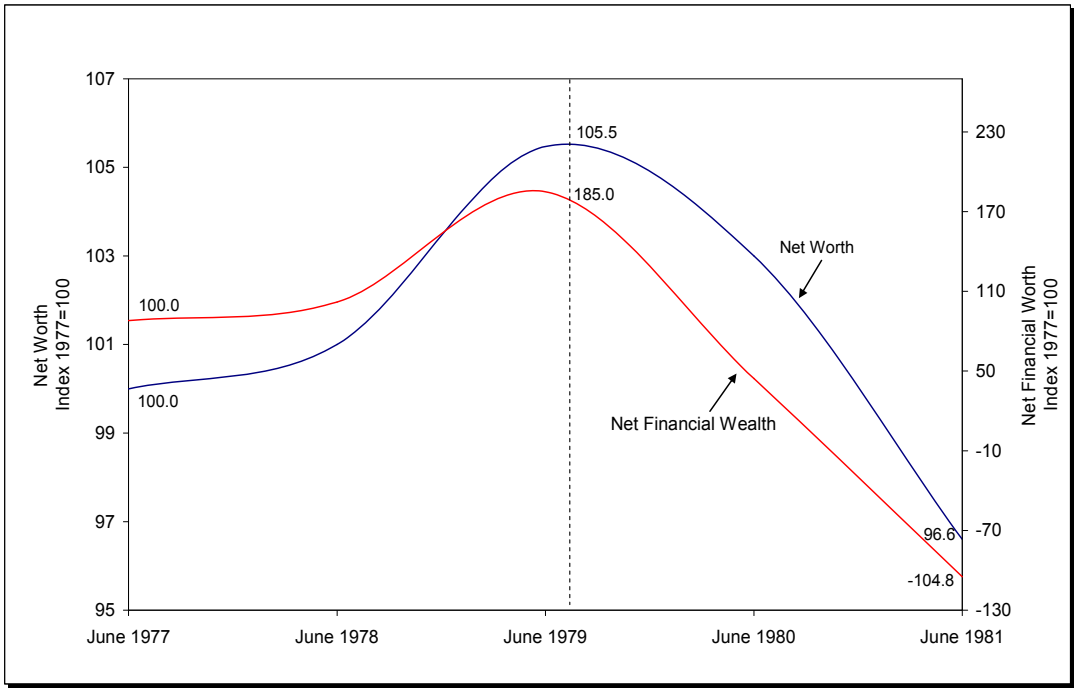
[4] These indices were calculated based on the figures of the Central Bank of Argentina depicted above in Graph VI:1
[5] B. Friedman, Op. Cit,1990, pg. 33

analyse the changes in stocks of assets and liabilities as well as the evolution of the position of liquidity of the business sector over the economic cycle[6]. However, as stated above, this quantitative information is *not* freely available in Argentina and, hence, this study was *only* possible by first constructing a macro-financial matrix and then, applying the data of the 'net financial wealth' and 'net worth' obtained for the non-financial private sector to analyse the evolution of the levels of liquidity and solvency throughout the business cycle[7]. Graph VI.2 shows the evolution of stocks of 'net worth' (nwp) and of 'net financial wealth' (nfwp) of this economic sector in the period 1977-81.

Graph VI.2

Net Worth and Net Financial Wealth of the Business Sector, 1977-81

(Index 1977=100)




Source: own estimation based on information of the matrix of assets and liabilities for Argentina calculated in Chapter IV with data obtained from the Central Bank. The Central Bank of the Republic of Argentina, Boletín Estadístico, monthly issues, 1977-81.

[6] For a formal analysis of the role of borrowers' balance sheets in the business cycle see, for instance, B. S. Bernanke, and M. Gertler, "Agency Costs, Net Worth and Business Fluctuations, American Economic Review, March 1989, 79, 1, pp. 14-31; M. Gertler "Financial Capacity and Output Fluctuations in an Economy with Multi-Period Financial Relationships", Review of Economics Studies, 1992, 59, pp. 455-472; and M. Gertler and R. G. Hubbard, "Financial Factors in Business Fluctuations" in, Asymmetric Information, Capital Markets and Investment, R. G. Hubbard (ed.), University of Chicago Press, Chicago 1990. pp. 35-67

[7] The macro-financial matrix for Argentina was constructed in Chapter IV, using the methodology outlined in Chapter II.

From a macro-economic point of view, the evolution of the aggregate degree of liquidity and solvency of one economic unit can be analysed by looking at both the levels and the changes in 'net financial wealth' and in 'net worth'. To begin with, some of the concepts studied in Chapter II should be recalled[8]. In general, the 'net financial wealth' of one economic unit (nfw) is equal to the difference between the stocks of financial assets and liabilities. By the same token, a change in the financial wealth (∆nfw) is explained by the surplus/deficit - saving minus physical investment - generated by the economic unit over a period of time (*income effect*), plus (minus) the capital gains (losses) calculated on its portfolio (*price effect*)[9]. This means that if one unit has a positive net financial asset position (nfw>0) and is accumulating financial assets because of a surplus (∆nfw>0), the probability that this economic unit faces problems of liquidity is very low. Nevertheless, this possibility is definitively higher in the case of units with deficits in which, the lower the 'net financial wealth' position, the greater the risk of becoming illiquid

The 'net worth' (nw) of one economic unit is equal to the difference between its stocks of all types of assets (financial and physical) and of debts[10]. Given that the (nw) is made up of the sum of the 'net financial wealth' (nfw) and the amount of physical assets, a change in the net worth (∆nw) of one economic unit is equal to the flow of savings plus (minus) the capital gains (losses) on its portfolio. The (nw) is a measure of the level of solvency of one unit and, therefore, a positive or negative change (∆nw) in this variable indicates the way in which its level of solvency evolves over time.

For the case-study, Graph VI.2 shows that the aggregate levels of liquidity and solvency of the non-financial private sector (nfwp) and (nwp) experienced a significant increase first and then, a marked decline. Between July 1977 and June 1979, the ratio of financial assets to liabilities - an index of liquidity - passed from 1.18 to 1.33. At the

[8] Chapter II, Section 3
[9] For a theoretical explanation of the capital gain/loss as a result of changes in relative prices see Chapter II, Section 3.
[10] Capital gains/losses on financial portfolio include - among others - the effect of changes in the real rate of exchange and in the rate of interest in real terms.

same time, the level of solvency was rising as a result of the increase in the 'sectoral net worth'. However, this positive development ended in mid-1979 *pari-passu* with the deterioration observed in the (nfwp) and (nwp) position.

What is striking about this process, though, is the ***magnitude*** and the ***speed*** at which the liquidity and solvency of the business sector declined over the period mid-1979 - end of 1981. Indeed, in less than one year, between May 1979 and March 1980, the (nfwp) declined in constant terms by more than 70% (from US$ 9.9 to US$ 2.8 billion) leading to a fall in the index of liquidity from 1.31 to 1.06. This process continued, and this index dropped to nearly 1 at the beginning of 1981, and fell to 0.79 at the end of this year. The same pattern occurred with the level of solvency of the business sector and consequently, the proportion of debt to 'net worth', the leverage ratio, rose from 21% over the years 1979 to 30% in 1980 and 42% in 1981.

The above suggests the existence of an endogenous real-financial interaction between the aggregate level of activity and the financial structure of the business sector: the levels of liquidity and solvency of the non-financial private sector increased in periods of economic growth and decreased in periods of recession. In other words, the level of financial fragility/robustness of this economic unit behaved pro-cyclically. As discussed in Chapter II, this has important consequences for the efficiency of the process of financial intermediation and hence, for the overall economic performance[11]. In effect, with imperfect information and costly default, a strong balance sheet position means that the borrower has more assets to lose and is, therefore, more likely to behave cautiously. This, in turn, ***signals*** a lower credit risk for the lender and consequently, the problems of 'hidden information' and 'hidden action' posed by asymmetric information are less significant. The implication of this is that the agency costs (cost of negotiation and monitoring) are reduced and, in the event of borrower default, the lender has more chance of recovering his investment. By the same token, when the balance sheet

[11] A summary of the main theories of asymmetric information and aggregate level of activity is presented in Chapter II, Section 2.

position is weak, the problem of asymmetric information is exacerbated. With less to lose, the probability of the borrower engaging in riskier activities is increased. He may also misrepresent his financial position and/or the purpose for which the funds were borrowed so as to be seen as less of a risk. As stressed by Bernanke and Gertler ‘‘… generally, the less of his own wealth a borrower can contribute to the funding of his investment project, the more his interests will diverge from those of the people who have lent to him. When the borrower has superior information about his project, or the ability to take unobserved actions that affect the distribution of the project returns, a greater incompatibility of interest increases the agency costs associated with the investment process’’[12].

In cases of a generalised deterioration in the balance sheet of the business sector, financial agents will be faced with a situation in which information in their possession with regard to the *quality* of their clients and projects is no longer accurate. As a result, the cost of borrowing is increased and this further affects the financial health of the debtor, reducing the rate of investment and, ultimately, economic growth. This theory was used by Bernanke to explain the extent and duration of the Great Depression in the United States of America. In his words … ‘’because markets for financial assets (claims) are incomplete, intermediation between some classes of borrowers and lenders requires non-trivial market-making and information gathering services. The disruptions of 1930-33 reduced the effectiveness of the financial sector in performing these services. As the real cost of financial intermediation increased, many borrowers found credit to be expensive and difficult to obtain. The effect of this credit-squeeze aggravated and prolonged the economic depression’’[13]. This is precisely what happened in Argentina in the period immediately following the collapse of the *Banco de Intercambio Regional* in March 1980[14].

---

[12] B. Bernanke and M. Gertler, “Financial Fragility and Economic Performance”, Quarterly Journal of Economics, 1990, p. 88.

[13] B. Bernanke, ¨Non-monetary Effects of the Financial Crisis in the propagation of the Great Depression’’, American Economic Review, June 1983, 73, pg. 257

[14] A full description of the chronology of the collapse of the financial system is given in Chapter IV, Section 5

What follows is an attempt to prove this endogenous interaction between the aggregate level of activity and the Argentine financial structure between 1977 and 1981. Although this type of studies of this real-financial relationship have been undertaken to analyse the Great Depression in the United States of America, this is the first time that such an analysis has been applied to the case of the banking crisis of Argentina of 1980[15]. It begins by estimating econometrically the following equations:

(1) $nfwp_t = \alpha_{11} + \beta_{11}\ ind\text{-}output_{t-4} + \beta_{12}\ credp_t + \beta_{13}\ spread_t + \beta_{14}\ nfwp_{t-1}$

(2) $nwp_t = \alpha_{21} + \beta_{21}\ ind\text{-}output_{t-4} + \beta_{22}\ spread_t + \beta_{23}\ nwp_{t-1}$

with:

ind-output = total industrial output
credp = stock of bank loans granted to the non-financial private sector
spread = rate of financial spread charged by the financial agents
nfwp = stock of 'net financial wealth' of the non-financial sector
nwp = stock of 'net worth' of the non-financial private sector

These equations include the price and income effects described above as explanatory variables of changes in the levels of liquidity and solvency of the non-financial private sector. In the case of equation (1), the industrial output (ind-output) and the bank credits (credp) are the variables chosen to represent the effect of the deficit/surplus of this economic sector on the financial wealth (*income-effect*), whereas the impact of changes in relative prices on financial assets and liabilities is represented by rate of spread (*price-effect*). As can be seen, the same explanatory variables are included in equation (2), with the exception of the amount of bank credits. The reason for this is that the only difference between the (nwp) and (nfwp) is the stock of physical assets (capital), which can be financed by funds generated inside the business sector (sectoral savings) and/or by funds borrowed from other sources (credits). Furthermore,

[15] Some of the best known of these studies are: B. S. Bernanke, Op. Cit., June 1983, pp.257-76. O. Eckstein and A. Sinai "The Mechanism of the Business Cycle in the Post-War Era", in The American Business Cycle: Continuity and Change, R. Gordon (ed.), 1986, Chicago. F. S. Mishkin, "The Household Balance Sheet and the Great Depression" Journal of Economic History, December 1978, 38, pp. 918-937.

the variables (nwp) and (nfwp) lagged in (t-1) periods are included to identify the existence of partial adjustment or inertia effect in the model equations. All the data of these estimations has been seasonally adjusted and thus, the seasonal effect has been eliminated. The econometric results of the estimations are presented below.

Table VI.1

Estimation of the Net Financial Wealth of the Business Sector, 1977-82

| Dependent Variable: nfwp<br>Method: Least Squares<br>Sample (adjusted): 1977:1 1982:4<br>Included observations: 24 after adjusting endpoints | | | | |
|---|---|---|---|---|
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | -13599.17 | 7254.233 | -1.874652 | 0.0763 |
| ind-output(-4) | 85470.54 | 31339.51 | 2.727245 | 0.0134 |
| credp | -0.173957 | 0.069052 | -2.519210 | 0.0209 |
| spread | -23955.93 | 8086.914 | -2.962308 | 0.0080 |
| nfwp(-1) | 0.695898 | 0.096299 | 7.226434 | 0.0000 |
| R-squared | 0.908548 | Mean dependent var. | | 2340.292 |
| Adjusted R-squared | 0.889295 | S.D. dependent var. | | 7506.488 |
| S.E. of regression | 2497.584 | Akaike info criterion | | 18.66709 |
| Sum squared residual | 1.19E+08 | Schwarz criterion | | 18.91251 |
| Log likelihood | -219.0050 | F-statistic | | 47.18992 |
| Durbin-Watson stat. | 2.242700 | Prob.(F-statistic) | | 0.000000 |

Source: own estimation based on information of the matrix of assets and liabilities for Argentina calculated in Chapter IV and statistics of national accounts obtained from the Ministry of Economy of Argentina. Econometric software: E-Views 3.0, Quantitative Micro Software 1997.

The above results show good econometric fitness of the equation (1). The coefficient of regression is high (adjusted R-squared=0.89); the model equation is statistically significant (F-statistic); and the single coefficients of the explanatory variables are all statistically significant (t-statistic) and have the 'expected' sign (+/-). Additionally, all these results have passed satisfactorily the standard tests of normality (Jarque-Bera's test), heteroskedasticity (White's test) and autocorrelation (Lagrange Multiplier and Ljung-Box Q-statistic tests) of the economic series. (The econometric results of these tests are presented below in Appendix B to Chapter VI).

Table VI.2

Estimation of the Net Worth of the Business Sector, 1977-82

| Dependent Variable: nwp<br>Method: Least Squares<br>Sample: 1977:1 1982:4<br>Included observations: 24 after adjusting endpoints | | | | |
|---|---|---|---|---|
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | 9228.205 | 12268.82 | 0.752167 | 0.4607 |
| ind-output(-4) | 89941.21 | 33314.84 | 2.699734 | 0.0138 |
| Spread | -25376.88 | 8325.854 | -3.047961 | 0.0064 |
| nwp(-1) | 0.771671 | 0.106659 | 7.234932 | 0.0000 |
| R-squared | 0.875641 | Mean dependent var. | | 131524.8 |
| Adjusted R-squared | 0.856987 | S.D. dependent var. | | 6978.177 |
| S.E. of regression | 2638.941 | Akaike info criterion | | 18.74515 |
| Sum squared residual | 1.39E+08 | Schwarz criterion | | 18.94150 |
| Log likelihood | -220.9419 | F-statistic | | 46.94152 |
| Durbin-Watson stat | 2.148856 | Prob.(F-statistic) | | 0.000000 |

Source: own estimation based on information of the matrix of assets and liabilities for Argentina calculated in Chapter IV and statistics of national accounts obtained from the Ministry of Economy of Argentina. Econometric software: E-Views 3.0, Quantitative Micro Software 1997.

A satisfactory econometric fitness is verified also for equation (2). The 'net worth' of the non-financial private sector is explained largely by the independent variables (adjusted R-squared = 0.86). In addition, the model equations as well as the single coefficients are statistically significant and have the 'expected' sign (F- and t-statistics). As with the previous estimation, the tests of normality, heteroskedasticity and autocorrelation of the series were all passed satisfactorily[16].

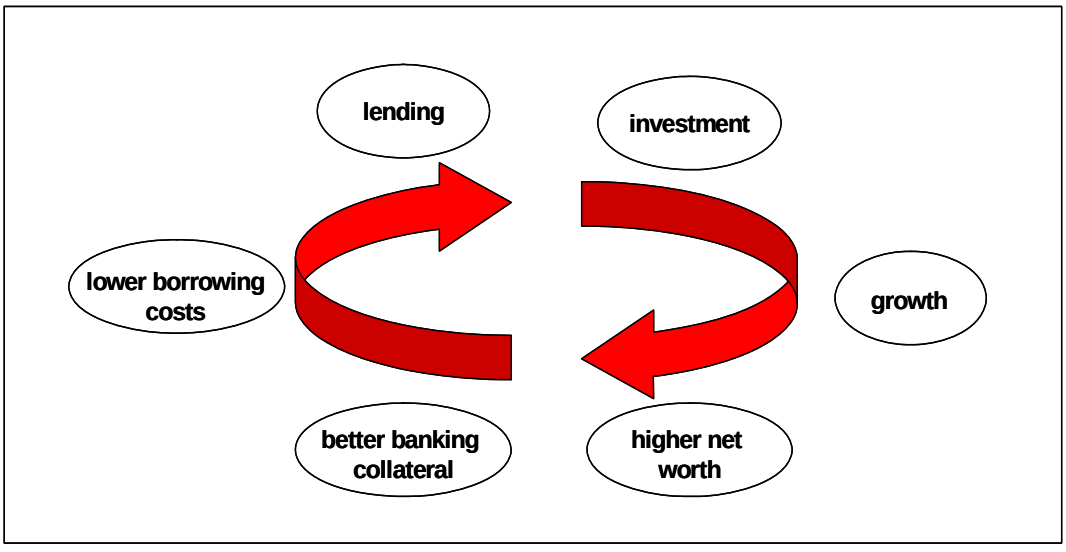
A point to be stressed is that besides the importance of these results taken individually, when looked at together, these estimations prove the econometric consistency of the overall formulation. This is so because the *same structure* of independent variables is statistically significant to explain the evolution of both the 'net financial wealth' and 'net worth' (net wealth) of the business sector as a whole. In addition, as stated earlier, these explanatory variables represent the *income*- and *price-effects* on the sectoral

[16] With a 5% significance level, the estimated regression satisfactorily passed the autocorrelation tests of residuals (Lagrange Multiplier and Ljung-Box Q-statistic tests) and the White's test of normality; see Appendix B to Chapter VI.

portfolio. Therefore, from the economic point of view, it can be affirmed that these findings prove not only a correlation of variables, but a cause-effect relationship: the levels of liquidity and solvency of the non-financial private sector over these years depended positively on the level of activity measured by the industrial output (*income-effect*) and negatively on the rate of spread charged by the financial intermediaries (*price-effect*). Furthermore, the level of liquidity of the business sector as a whole depended negatively on the amount of loans granted by the banks. In these estimations, there was a lag of four quarters in the variable (ind-output); that is to say, twelve months elapsed between an initial change in industrial output and the final effect on the level of liquidity and solvency of this sector. Finally, the coefficients of the variables nfwp(-1) and nwp(-1) show the existence of a partial adjustment or inertia-effect in these estimations.

In short, these econometric results fully confirm the interaction suggested above between the aggregate level of economic activity and the financial structure of the non-financial private sector. This interaction is shown in the graph below, which depicts the re-feeding process which took place in the Argentine economy between mid-1977 and mid-1979.

Graph VI.3
Real-Financial Interaction, Jul.1977– Jul.1979




Source: own construction based on the real-financial interaction described below.

This can be rationalised as follows: the credit boom which followed the financial reform of mid-1977 helped to increase the rate of investment which, in turn, led to an expansion in the level of activity. This growth brought about an increase in the financial wealth and in the 'net worth' of the non-financial private sector and this, both increased the *quantity* and improved the *quality* of the collateral given by borrowers to the banks. As the banks were flooded with deposits and eager to lend these funds, this wealth enhancement was welcomed as *new* collateral for further loans[17]. This was so because the improvement in the financial position of the business sector contributed to a reduction in the informational risk of the banks and, therefore, in the probability that their borrowers would default.

Nevertheless, a change for the worse in the macro-economic conditions from mid-1979 on transformed the virtuous circle described above into a vicious downward spiral. From this time on, the decline in the aggregate level of activity caused a marked deterioration in the levels of liquidity and solvency of the non-financial private sector. As discussed earlier, in this scenario, problems of distress borrowing are likely to appear during the down swing of the cycle, where there are low margin prices and returns on capital, high borrowing costs and a weak balance sheet position. This occurred in Argentina in the early 1980s, as the business sector continued accumulating debts with banks in order to survive. The new funds went to finance not an increase in investment but the operation and the continuity of already-established businesses. This means that the financial vulnerability of this economic sector as a whole was rising pari-passu with the reduction in its capacity to repay debts and thus, the probability of cases of distress borrowing was rising.

[17] Usually, the entire 'net worth' of an economic unit (agent or firm) and *not* one specific asset is considered by the financial institutions as collateral for commercial credits.

## VI.3 ECONOMIC PERFORMANCE AND CORPORATE FINANCIAL STRUCTURE

Although the macro-financial analysis undertaken in the last section is very useful as a means of recognising the *direction* and the *speed of change* in the levels of liquidity and solvency of the non-financial private sector as a whole, this is *not* so for the identification of the factors responsible for the increase in the degree of financial fragility. This requires a breakdown of the elements which affected the economic performance of the business units. The information needed for this kind of evaluation is contained in the financial statements of the companies. Unfortunately, this data is available in Argentina only for firms quoted on the stock exchange, and not for all companies. However, this group of firms accounted for around 25% of GDP and 70% of total exports and was engaged in different areas, including: food and beverage processing (Molinos Río de la Plata, Swift-Armour, Bonafide, Ledesma, Cervecería Quilmes), steel and aluminium production (Acindar, Aluar), tobacco (Massalin Particulares, Nobleza Piccardo), textiles (Alpargatas) and automobile manufacture (Renault), among others.

The sample of firms used in this study as a *proxy* for the whole business sector consists of 153 industrial enterprises quoted on the Buenos Aires Stock Exchange between 1977 and 1981[18]. At the end of the period under study, the size of this sample measured in terms of the stock of total assets was US$ 9,500 million, and in terms of 'net worth' US$ 5,400 million which means, around 76% of all the corporate assets which were quoted on the Stock Exchange and 27% of the total loans granted by the banking institutions to the private sector.

Given the regulations in force in Argentina during these years, the balance sheet data contains a partial adjustment for inflation: the fixed capital was re-valued taking inflation into account, and the assets and liabilities in local and foreign currencies were taken at

[18] The data for this sample of companies were obtained from the World Bank Project on "Liberalization with Stabilization in the Southern Cone" carried out by Humberto Petrei and James Tybout. A. H. Petrei and J. R. Tybout, "Financial Adjustments of Industrial Firms in Argentina during 1976-1981, paper submitted to the Econometric Society Latin American Regional Meeting, Santiago, mimeo, July 1983.

their end of the period value[19]. This data base contains annual information for the five accounting periods, 1977-81. For the sub-period, 1977-79, the figures were obtained from financial statements reported close to the middle of the year. For the more unstable years, 1980-81, in an attempt to reduce the inflationary effect on nominal values, the data was gathered on a quarterly basis, based on financial statements close to the middle of each quarter[20].

A study of the evolution of the profitability, liquidity and solvency of this sample of firms is carried out by looking at the following indices[21]:

Index of profitability:
a. Return on equity = operative + non-operative gain (loss) / net worth

Index of liquidity:
b. Current ratio = short-term assets / short-term debts
c. Quick ratio = (short-term assets - investments) / short-term debts
d. Immobilisation of assets (I) = long-term assets / net worth
e. Inmobilisation of assets (II) = long-term assets / (net worth + long-term assets)

Index of solvency:
f. Leverage = total debt / net worth
g. Leverage (in foreign currency) = debt in foreign currency / net worth
h. Liabilities as (%) of assets = total liabilities / total assets
i. Net worth as (%) of assets = net worth / total assets
j. Net worth index = net worth of each year / net worth of the base year (1977)

Table VI.3 summarises the main changes in corporate financial structure over the period 1977-81.

[19] These re-valuations corrected only partially the effect of inflation on corporate portfolios. In Argentina, the accounting statements were *not* adjusted by inflation until 1981.
[20] The financial statements of the firms were not adjusted by inflation.
[21] These are the typical indices for a study of the corporate financial structure. For a theoretical bibliography on this subject see, R. A. Brealey and S. C. Myers, Principles of Corporate Finance, Chapter VII, 1998

Tables VI.3

Profitability, Liquidity and Solvency of the Sample of Firms, 1977-81

| Total Firms (Ratios and Values) | 1977 | 1978 | 1979 | 1980 | 1981 |
|---|---|---|---|---|---|
| a. Return on equity | 26.0 | 16.0 | 22.0 | 12.0 | 3.0 |
| b. Current ratio | 1.23 | 1.16 | 1.13 | 1.11 | 1.14 |
| c. Quick ratio | 0.71 | 0.70 | 0.68 | 0.63 | 0.61 |
| d. Immobilisation of assets (I) | 1.04 | 1.16 | 1.23 | 1.28 | 1.69 |
| e. Immobilisation of assets (II) | 0.89 | 0.92 | 0.94 | 0.95 | 1.04 |
| f. Leverage | 0.73 | 0.85 | 0.89 | 0.98 | 1.22 |
| g. Leverage (in foreign currency) | 0.20 | 0.26 | 0.28 | 0.31 | 0.55 |
| h. Liabilities as (%) of assets | 0.42 | 0.46 | 0.47 | 0.50 | 0.59 |
| i. Net worth as (%) of assets | 0.58 | 0.54 | 0.53 | 0.50 | 0.45 |
| j. Net worth (in millions US$) | 506 | 504 | 519 | 482 | 494 |
| **Total Firms (Index 1977=100)** | **1977** | **1978** | **1979** | **1980** | **1981** |
| a. Return on equity | 100 | 62 | 85 | 46 | 12 |
| b. Current ratio | 100 | 94 | 92 | 90 | 93 |
| c. Quick ratio | 100 | 99 | 95 | 88 | 86 |
| d. Immobilisation of assets (I) | 100 | 112 | 119 | 123 | 163 |
| e. Immobilisation of assets (II) | 100 | 104 | 106 | 107 | 117 |
| f. Leverage | 100 | 116 | 121 | 134 | 166 |
| g. Leverage (in foreign currency) | 100 | 130 | 136 | 155 | 272 |
| h. Liabilities as (%) of assets | 100 | 109 | 111 | 117 | 139 |
| i. Net worth as (%) of assets | 100 | 94 | 92 | 88 | 78 |
| j. Net worth Index | 100 | 99 | 103 | 95 | 98 |

Source: own construction based on data taken from A. H. Petrei and J. R. Tybout, "Financial Adjustments of Industrial Firms in Argentina during 1976-1981, paper submitted to the Econometric Society Latin American Regional Meeting, mimeo, Santiago, July 1983.

These figures show that the economic performance of the sample of firms underwent a significant deterioration in these years. To begin with, the rate of corporate profits or the 'return on equity' declined from 26% per annum in 1977 to 3% in 1981. As can be observed, this was not a steady decline: this return dropped to 16% in 1978 and then increased to 22% in 1979. Subsequently, it fell dramatically to 12% in 1980 and to 3% in 1981. More importantly, in the period 1977-79, there was an accumulated profit of 54% and yet, the 'net worth' rose only 3% in real terms. This was so because the positive contribution to corporate wealth of the 'return on equity' was only slightly higher than the capital loss which resulted from the effect of changes in relative prices on the

stock of assets and liabilities of these companies[22]. However, between 1979 and 1981, the rate of profit declined sharply and failed to compensate for the capital loss suffered by these enterprises and as a consequence, the corporate 'net worth' declined in real terms. Over these years, the companies increased their level of indebtedness as a proportion of total assets, and this had two effects on the corporate financial structure. On the one hand, there was a decline in the degree of liquidity: the current and quick ratios dropped from an index of 100 in 1977 to 93 and 86 respectively in 1980. Additionally, the two indices of immobilisation of assets (I) and (II) increased to 163 and 117. All this reveals the mounting liquidity risk which the business sector faced over this period. It should be noted, however, that the current ratio did not fall below the critical level of 1, where a firm is considered technically 'illiquid'.

On the other hand, the accumulation of debt brought about an increase in the level of corporate leverage from 73% in 1977 to 122% in 1981. Furthermore, a large proportion of the new debt was obtained in the international capital markets and this explains the 170% increase in leverage in foreign currency. As argued earlier, the evolution of the level of corporate debt and the asset side of the balance sheet will be considered in the assessment of the risk of solvency of these companies. In this regard, Table VI.3 shows that the ratio total debts to total assets increased by 39%; and the ratio 'net worth' to total assets declined by 22% between 1977 and 1981. Additionally, the level of corporate 'net worth' declined in real terms. All this confirms the hypothesis that these companies were covering their losses - including the inflationary effect - with debts. It can, therefore, be concluded that the sample of firms, on average, faced rising exchange rate and solvency risks over the whole period under analysis, and in particular from 1980 on. However, as stated in connection with liquidity, the above ratios do *not* show a generalised problem of insolvency in these enterprises.

[22] As analysed earlier, a change in the level of corporate 'net worth' in real terms is the result of the effect of the 'return on equity' plus (minus) capital gains (loses) on the net financial asset position due to changes in relative prices. Capital loss (gains) is the net effect produced by changes in relative prices on the assets and liabilities held by one economic unit. For a formal analysis, see Chapter II, Section 3.

So far, it has been found that this sample of companies faced increased risks of *liquidity, foreign exchange* and *solvency* over the period under study[23]. The combined effect of these three types of risk was to make the firms far more financially fragile overall. The challenge now is to identify the factors responsible for the deterioration in the financial health of these enterprises. This analysis begins by considering the evolution of the 'return on equity', the most relevant indicator of the economic performance of a firm[24].

In general, the economic result of a company (gain/loss) is the difference between the income generated by its stock of assets and the expenditures generated by its stock of liabilities. After some transformation, the 'return on equity' (corporate profitability) can be expressed as shown in equation (3). A full formal explanation of the real and financial factors (including the leverage-effect), which affect the 'return on equity' and on 'assets' of a company, is presented below in Appendix A to Chapter VI.

(3) $\tau = (1 + \xi)\,\sigma - r\,\xi$

where: $\tau$ = return on equity = operative + non-operative gain (loss) / net worth
$\sigma$ = return on assets = operative + non-operative gain (loss) / stock of assets
$\xi$ = leverage = total debt / net worth (L/NW)
r = average rate of interest paid on debts

Equation (3) presents the 'return on equity' ($\tau$) as a function of the difference between the increase in the stock of assets [$(1 + \xi)\,\sigma$] and the cost of liabilities [$r\,\xi$]; both expressed as a proportion of the total corporate 'net worth'. It should be noted that in this equation, the change in assets depends on two variables: the level of leverage ($\xi$) and the 'return on assets' ($\sigma$); the change in liabilities also depends on the level of corporate

[23] Following a different approach and applying the theory of financial fragility put forward by Hyman Minsky, Julio Dreizzen obtained the same result: the financial vulnerability of this sample of firms increased over the period 1977-81. J. Dreizzen, Fragilidad Financiera e Inflación, Estudios CEDES, (1985). A summary of Minsky's theory is given in Chapter II, Section 2.
[24] A formal analysis of the variables which affect the rate of corporate profitability is given in Appendix A to Chapter VI.

leverage and on the rate of interest paid on debts in real terms, the financial cost (r). Finally, the importance of equation (3) for the present analysis should be stressed: it makes it possible to identify the effects of factors both endogenous and exogenous to the firm on the 'return on equity'. Indeed, provided that there is *not* extensive credit rationing in the financial market, the level of corporate leverage is the result of the financial policy followed by the managers of the company (endogenous variables). However, the other two factors affecting the firm's profitability - the 'return on assets' and the interest paid on debts - depend largely on government policies including, commercial and foreign exchange policies, anti-inflationary and wage policies and the monetary policy; variables which are exogenous and, therefore, beyond the control of the firm[25]. Furthermore, this kind of analysis will allow the identification of the weight which the real and the financial factors had on the economic performance of these firms (for a technical analysis, see Appendix A to Chapter VI).

Graph VI.3 presents the results of equation (3) for the sample of companies under study: the evolution of the 'return on equity' and its components - the changes in the stocks of assets and liabilities as a proportion of the corporate 'net worth' - over the period 1977-81. In addition, the variables responsible for these results - the return on assets, the cost paid of debts, the level of corporate leverage and the interest rate in real terms in the local financial market - are presented below in Table VI.4.

[25] It is true that, in the case of a single firm, the 'return on assets' depends also on various elements which are under managerial control such as the technology adopted, the level of productivity obtained and the price strategy decided. However, these endogenous factors become less relevant in a study of the business sector represented by a sample of firms with a wide range of economic activities in which, factors exogenous to the firm take on a greater importance.

Table VI.4

Breakdown of the Return on Equity, 1977-81

(Percentage points)

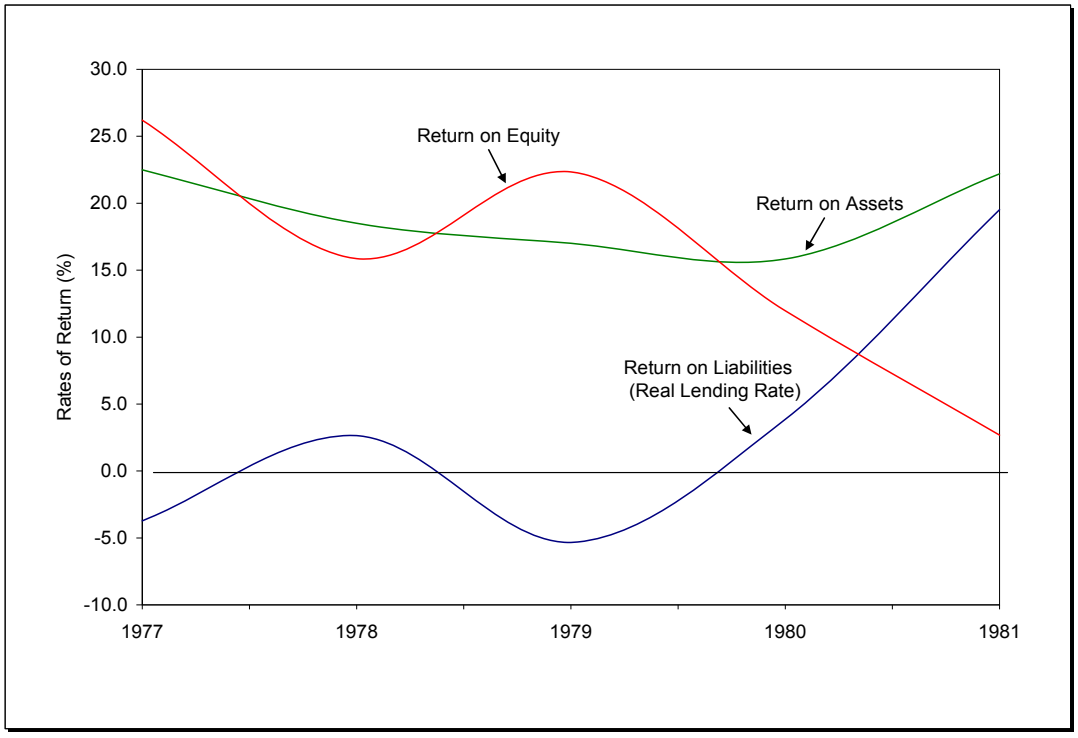
| Year | Return on Asset (σ) | Cost of Corporate Debts (r) | Real Lending Rate in Local Market | Corporate Leverage (ξ) | |
|---|---|---|---|---|---|
| | | | | Total | In Foreign Curr. |
| 1977 | 13 | -3.7 | -12 | 0.73 | 0.20 |
| 1978 | 10 | 2.6 | 6 | 0.85 | 0.26 |
| 1979 | 9 | -5.3 | -13 | 0.89 | 0.28 |
| 1980 | 8 | 3.9 | 9 | 0.98 | 0.31 |
| 1981 | 10 | 19.5 | 32 | 1.22 | 0.55 |
| Aver. 77-79 | 10.7 | -2.1 | -6.3 | 0.82 | 0.25 |
| Aver. 80-81 | 9 | 11.7 | 20.5 | 1.10 | 0.43 |
| Aver. 77-81 | 10 | 3.4 | 4.4 | 0.93 | 0.34 |

Source: own construction based on data taken from A. H. Petrei and J. R. Tybout, Op. Cit.

Graph VI.4

Return on Equity of the Sample of Firms, 1977-81

(Percentage points)




Source: own calculation based on data taken from A. H. Petrei and J. R. Tybout, Op. Cit.

As can be seen in Graph VI.4, the evolution of the 'return on equity' mirrors inversely the pattern followed by the financial cost paid by the firms for their debts whereas the

'return on assets' as a proportion of corporate 'net worth' follows a much smoother path. During the first year, debt payments rose by 6.4% and the 'return on equity' declined by 10.4%. In the following year, the former dropped by 8% and the latter increased by 7%. Finally, between 1979 and 1981, the financial costs increased by 25% and the 'return on equity' fell by 20%. It should be stressed that if the whole period under analysis is taken into account, the fluctuations in interest rates explain, to a great extent, the evolution of the corporate profitability.

Two different periods can be distinguished in the evolution of the 'return on equity', before and after 1979. As described above, the rate oscillated between a maximum of 26% and a minimum of 16% per annum, with an average of 22% between 1977 and 1979. Then, in the second period, the 'return on equity' experienced a rapid decline from 12% in 1980 to 3% in 1981, with an average of 7.3%. The factors behind these movements were the following: at the beginning, the financial reform of 1977, launched in an unstable macro-economic scenario, resulted in a credit boom with negative or very low lending rates in real terms[26]. This encouraged the companies to raise their leverage position from 0.73 to 0.89 between 1977 and 1979. On the real side, the 'return on assets' of these companies declined in these years from 13% to 9%, mainly due to the economic recession which occurred between the third quarter of 1977 and the second quarter of 1978[27]. However, given that the yield obtained on assets was higher than the cost paid for the funds borrowed, the enterprises benefited from a positive leverage-effect [($\sigma$ > r) L/NW] - the difference between the 'return on assets' and the cost paid for the funds borrowed, multiplied by the stock of debt as a proportion of 'net worth'. Based on equation (4), it is estimated that 50% of the rate of profits is explained by the *net return* - the positive leverage-effect - which these firms obtained on the funds borrowed. In other words, the difference of 11% between the returns on *equity* and on *assets* in 1977-79 is explained by the positive leverage-effect

[26] As shown in Chapter IV, Section 4, the monetary, fiscal, exchange rate and financial policies contributed to the generation of this `credit boom´ over the period 1977-79.

[27] As described in Chapter III, Section 4, during the period 1979-81, Argentina suffered a dramatic fall in the level of activity; GDP fell by 5.5% and production in the industrial and construction sectors dropped by 22.1% and 36.4% respectively.

experienced by these corporations (Graph VI.4). This shows that raising the level of corporate indebtedness was the appropriate policy in these circumstances as it resulted in increased profits.

After mid-1979, the large 'easy' gains obtained in the previous years by the business sector as a result of the low borrowing costs began to disappear. This was so because the rate of interest in real terms in the domestic credit markets increased dramatically from -13% in 1979 to 9% in 1980 and 32% in 1981. In spite of the higher costs, the firms continued raising their leverage position and consequently, debt payments increased from -5.6% of corporate 'net worth' in 1979 to 3.9% in 1980 and 15.7% in 1981 (Table VI.4). However, on the real side, the companies performed relatively poorly with a low 'return on assets' (around 8-10%) as a result of the continuous appreciation of the real exchange rate coupled with the economic recession, which began in the second half of 1979. This explains the notable deterioration in the rate of corporate profits over these years: the 'return on equity' dropped from 21% on average in the period 1977-79 to 12% in 1980 and to 3% in 1981 (see Graph VI.4 and Tables VI.3 and VI.4). In this scenario, given that the 'return on assets' of these companies remained fairly stable, the reduction in the 'return on equity' was mainly the result of the decline in the leverage-effect (see above equation 4): the leverage-effect [($\sigma$ > r) L/NW] fell from 10.8% in the period 1977-79 to 4.0% in 1980 and, thereafter, it became negative [($\sigma$ < r) L/NW] -7% in 1981. This means that the economic performance of the firms was affected adversely by the level of indebtedness, as the cost per unit of the money borrowed was higher than the return which these funds were generating (negative leverage-effect)[28]. The negative leverage-effect accounts for 96% of the total decline in rate of corporate profits in the period 1980-81[29].

[28] See below Appendix A to Chapter VI for a formal analysis of the 'leverage-effect'.

[29] The importance of the high real lending rate in the explanation for the decline in the level of activity in these years is emphasised by several authors including: Adolfo Buscaglia, Op. Cit.. 1980, p.10; Ernesto Feldman, "La Crisis Financiera Argentina, 1980-82. Algunos Comentarios", Desarrollo Económico, Oct.-Dec. 1983, No.19, vol. 23, pp. 449-455; Carlos F. Díaz-Alejandro, "Good-bye Financial Repression, Hello Financial Crash", Journal of Development Economics, 1985, 19, 112:1-24, p. 2; Roque B. Fernández, "La Crisis Financiera Argentina, 1980-82", Desarrollo Económico, Apr.-Jun.1983, No. 89, Vol.23, pp.78-95; James Tybout, "A Firm-Level Chronicle of Financial Crises in the Southern Cone", Journal of Development Economics, 1986, pp. 371-400.

In short, it has been shown that the economic performance of the sample of companies as a whole is largely attributable to factors associated with the liability side - real rate of interest and the level of corporate debt - and *not* the asset side of the balance sheet. Moreover, it has been demonstrated that debt obligations rose before mid-1979 mainly due to a micro-economic or *endogenous* variable - the corporate financial policy - and thereafter, due to a macro-economic or variable *exogenous* to the firm - the real lending rate charged by the banks[30].

This evaluation is completed with the identification of the impact of each of the three factors ('return on assets', interest rate and level of leverage) on corporate profitability. This will be done by running the following counterfactual analysis: what would the evolution of the corporate 'return on equity' have been if:

(a) the 'return on assets' and the leverage position which prevailed in the year 1977 had remained unchanged, while the interest rate in real terms evolved as it did (*Simulation I: interest rate-effect*);
(b) the leverage position and the interest rate in real terms which prevailed in the year 1977 had remained unchanged, while the 'return on assets' followed its actual pattern (*Simulation II: return on asset-effect*);
(c) the 'return on assets' and the interest rate in real terms which prevailed in the year 1977 had remained unchanged, while the level of leverage rose as it did (*Simulation III: leverage-effect*);
(d) the corporate debt had been accrued in the domestic financial system - no foreign financing - all other factors changing as they did (*Simulation IV: borrowing-effect*).

[30] A detailed study of the factors responsible for the increase in the lending rate is given in Chapter IV.

Table VI.5

Evolution of the Return on Equity: Real and Simulated Cases, 1977-81

(Percentage points)

| Period | Real Case | Simulation I Interest Rate Effect | Simulation II Return on Assets Effect | Simulation III Leverage Effect | Simulation IV Dom. Borrow. Effect |
|---|---|---|---|---|---|
| 1977 | 26.2 | 26.2 | 26.2 | 26.2 | 31.3 |
| 1978 | 15.9 | 20.6 | 21.0 | 29.3 | 13.4 |
| 1979 | 22.3 | 26.5 | 19.3 | 29.5 | 28.6 |
| 1980 | 12.0 | 19.7 | 17.6 | 30.9 | 7.0 |
| 1981 | 2.7 | 12.6 | 21.0 | 36.2 | -16.8 |
| Aver. 77-79 | 21.5 | 24.5 | 22.2 | 28.3 | 24.4 |
| Aver. 80-81 | 7.3 | 16.1 | 19.3 | 33.5 | -4.9 |
| Aver. 77-81 | 15.8 | 21.1 | 21.0 | 30.4 | 12.7 |

Source: own construction based on data taken from A. H. Petrei and J. R. Tybout Op. Cit.

As can be seen in Table VI.5, on average, the actual decline in corporate profitability was greater than that obtained in Simulations (I) and (II) between 1977-79 and 1980-81. Alternatively, the 'return on equity' in the first two hypothetical cases was higher, on average, than that obtained in practice. This means that the interest rate and the 'return on assets' effects individually would have had a negative effect on the rate of corporate profitability (Simulations I and II). However, this fall was greater in reality, as the firms were suffering the effects of both factors simultaneously. Simulation (III) demonstrates that the policy of raising the leverage position would not have resulted in a drop in the level of corporate profits if the 'return on assets' and the interest rates in real terms had been maintained at 1977 levels. However, in practice, as the lending rate for these companies increased on average from -2.6% per annum in 1977-79 to 11.7% in 1980-81, the accumulation of debt contributed to reducing the level of profitability of the companies.

Based on these figures, it is estimated that the combined effect of the increase in the real lending rate and in the level of leverage account for 79% of the decline in the rate of profits between 1977-79 and 1980-81 on average, while the fall in the 'return on assets' explains the remaining 21%. Moreover, 75% of the rise in debt payments is the result of the increase in the interest rate in real terms. In turn, this implies that nearly

60% of the total decline in the rate of profits can be attributed to the increase in the cost of money (higher lending rate).

It should be stressed that these results correspond to large firms with full access to international capital markets. For enterprises which were at the mercy of the domestic financial market, the negative effect on profits would have been even greater (Simulation IV). Indeed, if all the loans had been obtained locally, the rise in the cost of debt would have explained 87% of the decline in the 'return on equity'. This is very important because many small and medium-sized businesses - the mainstay of the Argentine economy - which were unable to obtain funds abroad, must have found it hard to cope with the dramatic increase in the cost of their obligations[31]. In this case, it is estimated that the increase in the cost of financing would have caused a decline in the 'return on equity' of nearly 30%, from 24.4% to -4.9% between 1977-79 and 1980-81 (last column Table VI.5).

In fact, one consequence of this high and growing level of financial fragility of the firms in the sample was that, of the 153 companies, 23 were so seriously affected that they ended up either in '*concurso*' or liquidation during the period 1980-81[32]. Although this represents only 15% of the total firms in the case-study, it cannot be assumed that the remaining 130 were financially healthy. This is so because they were burdened with loans taken out at a time of negative real interest rates on average (1977-79) and were now faced with the prospect of re-payment in a period in which the real lending rate was rising and the 'return on assets' was not (1980-81).

---

[31] With regard to this, Cavallo and Petrei affirmed: ''the financial costs for small firms were almost three times those of large firms'' and … ''smaller firms had to get financing from institutions which operated almost exclusively with domestic funds''. D. F. Cavallo and A. H. Petrei, ``Financing Private Business in an Inflationary Context: The Experience of Argentina Between 1967 and 1980. Journal of Development Economics, 32 (2), April 1891, pp. 169-96, pp.171 and 175.

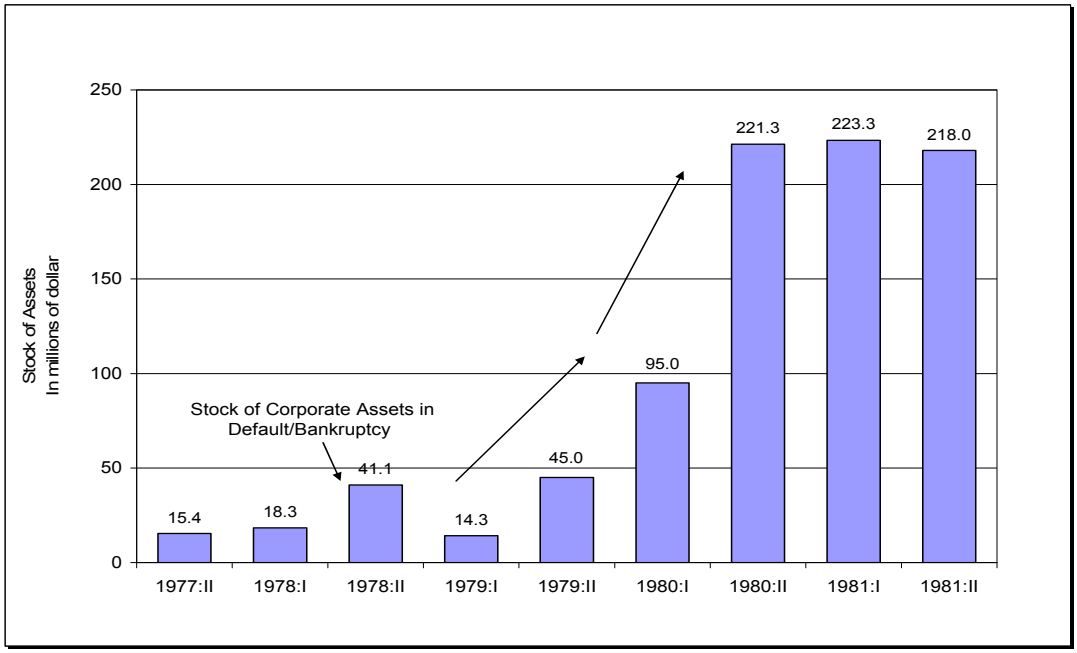
[32] In general, a firm is at risk of insolvency when the difference between its assets and its debt obligations is marginal. When the assets no longer exceed the liabilities - the 'net worth' is nil or negative - the firm is technically insolvent and becomes the property of its creditors. This implies that the assets of the company will be sold and the proceeds will be divided among creditors. In some countries like Argentina, the selling of assets is usually postponed in the hope of a formal agreement for repayment of the debt between the debtor (company) and its creditors. This system called '*concurso*' is aimed at avoiding capital losses associated with the distress selling of assets. If the agreement is not fulfilled during the trial period, the firm can be declared bankrupt and liquidated.

## VI.4 BORROWER FRAGILITY AND FINANCIAL STABILITY

In Section 2, it was shown that from mid-1979 on there was a sharp deterioration in the levels of liquidity and solvency of the private sector as a whole and it was suggested that this was the consequence of the high indebtedness in a period in which the lending rate was rising rapidly while the level of activity was falling. In Section 3, it was found that a sample of firms followed a similar pattern of liquidity and solvency and that the lending rate and their leverage positions were key factors in explaining the increase in the level of financial fragility of these companies. These findings are very important because when one looks at a universe (all the economic units) and identifies certain trends and then, these same patterns are found for a representative part of the whole (a sample of firms), and a key factor is recognised, it is it is reasonable to assume that this factor also affects the whole universe. This assumption can be tested by looking at the evolution of the amount of assets frozen by the Courts for the business sector as a whole as companies went into either '*concurso*' or liquidation.

Graph VI.5

Firms' Assets in Default and/or Bankruptcy, 1977-81




Source: own calculation based on data obtained from Baliño, Op. Cit., (1987)

Graph VI.5 shows the evolution of assets of firms declared bankrupt in the Buenos Aires Courts over the period 1977-81. It is estimated that all companies operating in this geographical district accounted for around 30% of the stock of credits given by the banks to the productive sector and for 15% of the credits given to the private sector as a whole (individuals and enterprises)[33]. As can be seen above, problems of solvency in the business sector were relatively insignificant until mid-1979; representing 0.28% of the bank credits granted to firms in Buenos Aires. This situation changed dramatically during the second half of this year, when the amount of assets in receivership ('*concurso*') more than quadrupled, going from US$ 25 to US$ 130 million; that is, from 0.28% to 1.2% of the total loans allocated to firms. Subsequently, after a slight improvement in the first half of 1980 due to the huge financial assistance given by the Central Bank to the banks, which temporarily alleviated the situation for borrowers, the amount of assets in default rose further, reaching US$ 225 million; that is, 2.25% of the total loans allocated to firms in the Buenos Aires area in the second half of 1980, an eight-fold increase[34].

Although these figures represent only a small proportion of the amount of loans granted by the banking system, this marked increase in the number of companies facing financial difficulties is a clear symptom of the growing fragility of the business sector. In effect, the spread of the problem of solvency in the real side of the economy was an issue of major concern for the economic authorities. In 1980, the Vice-president of the Central Bank, Alejandro Reynal declared "there are problems in firms such as, if an entrepreneur wants to pay back a loan, he is unable to do so. This is so because day by day he goes further into debt, as the company is not profitable enough to pay the high interest rates reigning in the market"[35]. He also stated: "I just want to say that

[33] These figures were estimated based on the proportion of GDP generated in the Greater Buenos Aires area.

[34] Besides this financial assistance, the Central Bank ordered banks to set up a reserve against unforeseen risks of an amount equivalent to 20% of the payroll of the institution (Circular No. 1245). This was done to protect against non-performing loans. For more details of this financial assistance, see Chapter IV, Section 5.

[35] Author's translation of the speech given at the ''First Conference on Industrial Modernisation'' taken place in the Centro Cultural General San Martin. Newspaper report, La Razón, 21 Friday, Nov. 1980, p. 5

there are many companies at this moment which should have closed down a long time ago[36]. In the same vein, James Tybout affirmed: ''bankruptcy began to occur with increasing frequency, non-performing bank loans multiplied and the portfolios of many leading (financial) institutions deteriorated rapidly''[37]. Julio Dreizzen proved that, at the beginning of 1980, the level of corporate financial fragility rose sharply[38]. These statements and studies would suggest that the graph above shows only the ''tip of the iceberg'' and that many more business units were in serious financial difficulties which, at the end of the day, would cause further problems for the financial institutions. This conjecture is supported by the figures given earlier in Section 2, which show the rapid increase in the leverage position of the non-financial private sector.

For the sample of firms analysed earlier in Section VI.3, it has been proved that the main reasons for the deterioration in their financial health were the increase in the lending rates together with their high leverage position. If this holds true for the economy as a whole, one would expect to find a high positive correlation between the amount of assets under judicial supervision (*'concurso'*) and the rise in the lending rate and in the level of leverage of the business sector. Formally, this can be expressed as:

$$(3) \qquad assbkr_t = \alpha_1 + \beta_1\, lendr_t + \beta_2\, lever_t$$

with:

assbkr = assets under judicial supervision or in bankruptcy
lendr = lending rate in real terms
lever = leverage position of the private sector as a whole

The econometric estimation of equation (3) is undertaken using the logarithms of these series, after seasonal adjustment.

---

[36] La Razón, 21 Friday, Nov. 1980, p. 5
[37] J. Tybout, Op. Cit., 1986, p. 391
[38] The index of corporate financial fragility calculated by Dreizzen is based on Minsky's theory, which is defined as the ratio of debt service payments to self-generated funds (debt service = debt amortisation plus interest payments) and (self-generated funds = corporate profits, plus asset depreciation and interest, minus taxes). J. Dreizzen, Op. Cit., 1985, pp. 35-52 and H. P. Minsky "A theory of systematic fragility", in Financial Crises: Institutions and Markets, Altman y A. Sametz (eds.), 1967

Table VI.6

Assets Under Judicial Supervision or in Bankruptcy, 1977-81

| Dependent Variable: assbkr<br>Method: Least Squares<br>Sample(adjusted): 1977:4 1981:4<br>Included observations: 17 after adjusting endpoints | | | | |
|---|---|---|---|---|
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | 14.81518 | 0.658274 | 22.50608 | 0.0000 |
| lendr | 0.288808 | 0.078951 | 3.658062 | 0.0026 |
| lever(-3) | 3.010713 | 0.472561 | 6.371063 | 0.0000 |
| R-squared | 0.769317 | Mean dependent var. | | 10.94150 |
| Adjusted R-squared | 0.736362 | S.D. dependent var. | | 1.036290 |
| S.E. of regression | 0.532090 | Akaike info criterion | | 1.734779 |
| Sum squared residual | 3.963683 | Schwarz criterion | | 1.881816 |
| Log likelihood | -11.74562 | F-statistic | | 23.34461 |
| Durbin-Watson stat | 2.264464 | Prob.(F-statistic) | | 0.000035 |

Source: own estimation based on information taken from (1) T.J.T. Baliño, "The Argentine Banking Crisis of 1980", IMF Working Paper, Nov. 1987; (2) the matrix of assets and liabilities for Argentina calculated in Chapter IV; and (3) The Central Bank of Argentina , Boletín Estadístico, monthly issues (1977-81). Econometric software: E-Views 3.0, Quantitative Micro Software 1997.

These figures show a sound econometric fitness: the independent variables selected (lending rate in real terms and corporate leverage) help to explain - to a large extent - the firms in default (adjusted R-squared= 0.74). The model equation is statistically significant and all the single coefficients have the expected 'sign' and are statistically significant (F- and t-statistics) and, with a 5% significance level, the regression satisfactorily passed the White's test of normality and the autocorrelation tests of residuals (Lagrange Multiplier and Ljung-Box Q-statistic tests)[39]. From an economic perspective, it can be stated that 74% of the total change in the amount of assets in '*concurso*' (assbkr) is explained by the lending rate in real terms (lendr) and the level of leverage with a lag of three quarters [lever(-3)].

This estimation corroborates the conjecture made above regarding the importance of the real lending rate and the leverage position in explaining the rise in the degree of

[39] These econometric results are presented in Appendix B to Chapter VI.

financial fragility of the non-financial private sector as a whole from mid-1979 on[40]. Based on this, it can be stated that the financial vulnerability of the business sector began to rise in the second half of 1979 and developed into mounting problems of solvency from then on. In mid-1980, when the financial intermediaries were struggling to survive the liquidity crisis which ensued with the liquidations of the *Banco de Intercambio Regional* (BIR), *Banco Internacional and Banco de Los Andes*, the increased financial fragility of the business sector meant a reduction in the overall *quality* of bank credits. In effect, the sharp decline in the 'net worth' of the non-financial private sector - the main collateral for loans - brought about a general increase in the risk of insolvency of bank borrowers and consequently, a widespread reduction in the probability of loan repayment[41]. As a result, by late 1980, the *stability* of the financial system as a whole had been compromised. This was recognised by the Treasury Secretary Juan Alemann who admitted that if all the banks wrote off their bad debts several of them would be forced to close their doors[42]. This position is shared by José Luis Machinea who stressed that a large number of borrowers were unable to redeem their obligations with banks[43]. This means that many debtors were trapped in a *stock-flow* disequilibrium, in which their capacity to generate the income required to pay off the accumulated debt was insufficient[44].

The worsening of the debt repayment capacity of bank borrowers had important negative consequences for the entire economy. First of all, the decline in corporate 'net worth' encouraged many firms to try to improve their economic position by assuming

[40] As defined in Chapter IV, Section 5, vulnerability or financial fragility refers to a position of weakness for absorbing negative shocks as a result of the high-risk exposure taken by the economic agent.
[41] Ben Bernanke puts forward the idea of the progressive erosion in 'borrowers' net worth' (collateral) relative to their debt burdens as the central argument of the pervasiveness of the Great Depression in the economic recovery of the United States of America. He stated that the monetary explanation of the Debt Crisis of 1930 given by Friedman and Schwartz based on a monetary contraction seems insufficient to explain the fall in output. B. Bernanke, Op. Cit., June 1983, 73, pp.257-76.
[42] Newspaper interview, Clarín, Thursday 4, December 1980, p.10
[43] This confession was made by Machinea in a personal interview with the author. José Luis Machinea was Minister of Economy (1999-2000); President of the Central Bank (1985-89) and a member of the staff of the Central Bank during the period of the financial liberalisation reform (1977-81).
[44] This stock-flow disequilibrium affecting the borrower-lender relationship internally is similar to the national stock-flow disequilibrium of the country as a whole with foreign creditors explained in Chapter III, Section 4.

greater levels of risk. This was so because highly indebted companies with liquidity and solvency problems did not have any other way of financing their activities but to continue borrowing and even more so, if they had less of their own capital (net worth) to lose[45]. The most representative of these were the debtors of those banks which had behaved speculatively by taking excessive risk such as, the *Banco de Intercambio Regional* and *Banco de Los Andes* or by lending to sister companies such as the *Banco Internacional*[46]. In the words of Alejandro Reynal ‘’many firms decided to gamble against the continuance of the economic programme, and in spite of the fact that borrowing was an expensive option, did so to cover losses, to survive, to hold on’’[47]. The same was pointed out by Domingo Cavallo and Humberto Petrei ‘‘why do firms rely more on debt financing even though it is very costly in real terms ?. When the entrepreneurs are asked this question, their usual answer is that losses have to be financed and debt financing is the only available alternative’’[48].

As suggested in these statements, the increase in the lending rate encouraged some borrowers to change their attitude towards risk, making them less trustworthy (adverse selection); while others, decided to undertake ‘more profitable’ and hence, riskier projects (incentive effects). This situation gave an extra stimulus to borrowers to misrepresent and/or to camouflage the projects’ results or the performance of their firms, pretending to their creditors that they were financially sound (moral hazard). This, in turn, helps to explain the additional costs (explicit or implicit) that the intermediaries had to bear in order to audit or verify the truth of the performance and the ‘net worth’ of the firm and to liquidate assets if borrowers went bankrupt (transaction costs). An extra stimulus to behave irresponsibly was the belief that if the situation became a generalised problem of insolvency the government would be forced to step in to avert

[45] As analysed in Chapter IV, Section IV.5, this is a typical case of moral hazard in which one agent changes their risk position when he has less to lose.
[46] These cases of excessive risk taking and speculative behaviour in the financial system are discussed in depth in Chapter V, Section 6. This study is complemented with the analysis of the failures in supervision and banking regulations made in Chapter IV, Section 4.5
[47] Loc. Cit. La Razón, 21 Friday, Nov. 1980, p. 5
[48] D. F. Cavallo and A. H. Petrei, Op. Cit., April 1891, pp.177.

an economic collapse. These four factors - the increase in the *riskness* of borrowers and projects, the tendency on the part of bank debtors to conceal the results of their actions and the historical role of governments as the lender of last resort - had a negative impact on the loan-risk distribution of banks. In other words, the risk faced by the financial agents increased.

It should be stressed that the riskier behaviour of borrowers was possible because the financial intermediaries also began to take greater risks in loan allocation. In effect, as explained in Chapter IV, Section VI.5, from the second quarter of 1980 on, the financial agents started to face the same problem of moral hazard as their clients: the decline in the banks' capital (net worth) together with the need to obtain funds to deal with the liquidity crisis generated by the deposit run, prompted the banks to assume higher levels of risk in portfolio allocation. This suggests that the structure of incentives in the economy - the rules of the game - was changing adversely due to the actions of both borrowers (business sector) and lenders (banks). In this regard, it is reasonable to assume that the capacity of the financial agents regarding risk assessment in the allocation and monitoring of funds had suffered a severe weakening by the second half 1980. This is so because the main intangible asset of the financial agents, the 'state of affairs' of their borrowers was undergoing a marked change and as a result, their information about *which* projects were likely to be profitable enough to enable the borrower to repay the loans, and *who* the most trustworthy borrowers were, was less reliable[49].

This change in the borrower-lender relationship had two consequences for the financial system: one, the efficiency of the process of financial intermediation was adversely affected and; two, the fears of the general public that the banking system was not to be trusted were deepened by the increasingly difficult situation of bank borrowers, who were facing rising lending rates, growing foreign competition and economic recession.

[49] A similar approach can be found in B. Bernanke and M. Gertler, Op. Cit., March 1989, 79, 1, pp.14-31; C. Calomaris and R. G. Hubbard "Firm Heterogeneity, Internal Finance and Credit Rationing", The Economic Journal, March 1990, 100, 90-104; and M. Gertler Op. Cit., 1992, 59, pp. 455-472.

With more and more bad debts and the spectre of further deposit withdrawals, there was a real possibility that the entire banking system would collapse.

By mid-1980, the government had begun to realise how serious the situation was and applied an extensive plan to bail out insolvent banks and firms: between November 1980 and December 1981, the Central Bank granted loans amounting to US$ 6,500 million (4.5% of GDP), equivalent to 12% of the stock of total credits and 15% of lending given to the private sector. This was followed in 1982 by a rescue plan for firms which had borrowed abroad. In a period in which the peso was being devalued, the government guaranteed the future nominal exchange rate at which these debts would be repaid - a process known as 'nationalisation' of private foreign debt. It is estimated that this plan covered around 70% of the total private foreign debt, approximately US$ 9,600 million[50]. Another debt-relief measure applied in the same year was the setting of nominal interest rates which were negative in real terms (-4.8% per month on average, that is -75.5% per annum), the result of which was a massive redistribution of wealth from depositors to lenders in the banking system: it is estimated that the borrower subsidy amounted to 13.5% of GDP in the period 1982-83, equivalent to 23% of the stock of lending given to the private sector[51]. Despite all these efforts, over the period 1980-81, economic activity experienced an unprecedented fall with a decline of 12% of GDP and 20.4% in industrial output. This marked the beginning of the longest period of economic stagnation in modern Argentine history.

[50] For more details, see R. Frenkel, J. Fanelli and J. Sommer, "El Proceso de Endeudamiento Externo Argentino", Documento CEDES, No. 2, 1988, p. 13

[51] The subsidy obtained by the bank borrowers was estimated by Tomás Baliño, Op. Cit., 1987, p. 61. Its proportion in terms of the stock of credits given to the private sector is author's calculation based on data taken from the financial matrix of assets and liabilities for Argentina (Appendix B to Chapter IV).

## VI.5 CONCLUSIONS

The macro- and micro- economic studies undertaken in this Chapter prove that the non-financial private sector was experiencing generalised problems of solvency in the years 1980-81 and that these problems stemmed primarily from financial factors both endogenous and exogenous to the firms - a high corporate leverage position combined with an increased lending rate. The hypothesis advanced in Chapter V has thus been confirmed: in a scenario of economic uncertainty, the decision made by banks to raise lending rates in order to deal with their immediate problems of liquidity ended up creating problems of solvency first for bank borrowers and, ultimately, for the banks themselves.

The liberalisation of the financial system in 1977 gave rise to a rapid expansion in the supply of bank loans (credit boom), generating a period of economic prosperity which lasted until the first half of 1979. During this time, the business sector made large profits due to the combination of high 'return on assets' and negative real lending rates, which increased the level of 'corporate net worth'. In turn, the stronger balance sheet position of borrowers had a positive effect on both the *quantity* and *quality* of the collateral offered to banks. As a result, the financial agents were encouraged to continue lending, which helped to sustain a high level of activity. At the same time, the business sector continued raising its levels of indebtedness in order to take advantage of the positive leverage effect resulting from the negative real interest rates.

However, in the second half of 1979, the economy went into recession and the banks began to raise lending rates in real terms, which caused a marked decline in the indices of liquidity and solvency of bank borrowers. This had serious consequences for the business sector in that their capacity to repay outstanding debt obligations was reduced which, in turn, increased the probability of distress borrowing, further deteriorating the *quality* of bank loans. Moreover, the weakening in the balance sheet position of the firms together with the rising lending rates exacerbated the problems

caused by asymmetric information (‘hidden information’ and ‘hidden action’) between borrowers and lenders. As a result the bank borrowers began to change their attitude towards risk, making them less trustworthy (adverse selection); while others, decided to undertake ‘more profitable’ and hence, riskier projects (incentive effects). By the end of 1980, the capacity of the financial system to acquire accurate information had been greatly reduced, affecting its overall efficiency in loan allocation. However, at that time, the most important problem for the financial intermediaries, resulting from the deterioration in the financial health of their borrowers, was a spreading problem of non-performing loans. Although the government attempted a massive bailout of the financial system and business sector, it was too little, too late. The level of activity plummeted and the Argentine economy went into the longest period of recession in its modern history.

# CHAPTER VII

# GENERAL CONCLUSIONS

## VII. GENERAL CONCLUSIONS

The main conclusion to be drawn from this dissertation is that the failure of the financial liberalisation was due to both a fundamental flaw in the neo-classical theory of financial markets and the macro-economic background against which this experiment was put into practice. With regard to the former, for the neo-classical theorists, financial markets were like any other market, and the liberalisation of the market forces was regarded as the necessary and sufficient conditions for an efficient operation of financial institutions. At that time, the seriousness of the effects of asymmetric information was *not* generally recognised and, therefore, little attention was paid in the Argentine financial reform of mid-1977 to the importance of regulating the amount of risk assumed by the financial intermediaries. The lack of appropriate regulation and supervision encouraged cases of excessive risk taking, speculative behaviour and corruption within the banking system, which had deleterious effects on the efficiency of resource allocation. At the same time, with large fiscal and foreign deficits, the informational problems present in financial markets were exacerbated in the case of Argentina by persistent high inflation, which further diminished the capacity of agents to make accurate predictions about market prices in real terms, including the interest and foreign exchange rates. The quality of loan allocation was also adversely affected by the abundance of deposits after the financial de-regulation, which generated a credit boom. This led the banks to relax their standards for screening and selecting projects and borrowers so as to speed up the process of lending. All these factors caused deterioration in the quality-features of the macro-financial structure, which brought about a steady rise in the levels of the country's financial fragility until March 1980, when the banking system finally collapsed.

The findings presented in this study also confirm that the failure of the financial experiment of the late 1970s was the primary cause of the longest period of economic stagnation in the history of Argentina. In contrast to the predictions of the neo-classical theorists, the financial liberalisation did *not* result in an increase, but rather in a decrease in the rate of national savings. This decline occurred in a period in which the

level of investment remained constant and the gap was financed by external funds (foreign savings). The consequence of this was a sharp increase in the level of the country's foreign indebtedness. What is more, these obligations were accrued while Argentina was experiencing an across-the-board process of de-industrialisation which, ultimately, seriously diminished its capacity to repay what it had borrowed. As a result, for the first time ever, a large *stock-flow* disadjustment emerged in the economy in the early 1980s. Furthermore, the interest rate de-regulation and the increased competition within the banking system did *not* result in greater efficiency in capital allocation. Clear evidence of this is the very high lending rates and financial spread in real terms which prevailed in the financial markets after mid-1979. It has been shown that the high financial costs plus the growing overvaluation of the peso during the period 1979-81 contributed greatly to the erosion of the economic bases of many bank borrowers, which, ultimately, caused the financial crisis of 1980-81. These two consequences of the financial liberalisation reform - the collapse of the banking system and the structural disadjustment between the stock of foreign debt and the country's capacity to repay it - are at the root of the economic downturn and the long period of stagnation which followed.

**Theoretical Considerations and Policy Lessons**

There are a number of specific policy implications which have been raised throughout this dissertation and which can be summarised as follows:

***Financial Liberalisation Reform: initial macro-economic conditions.***

History matters for the success of an experiment in freeing a financial system. As in the case of Argentina, if the banking system has been operating for many years under the direct control of the Central Bank (interest rate ceilings, nationalisation or centralisation of deposits), it is most likely that after the reform - and for some period of time - the financial agents will have neither the expertise *nor* the information for a sound loan allocation. When there is a high level of financial repression, therefore, the de-regulation must be introduced *step by step* in order to allow the financial institutions time to adapt to the new rules of the game. This means that the non-written rules generally adopted by the

economic agents in each country, including the social conventions, customs, norms of behaviour and codes of conduct should be taken into account in the design, degree and speed at which the financial system will be liberalised. Stability of prices is also a basic pre-condition for a successful de-regulation of the banking system. None of these pre-requisites were met when the financial liberalisation was launched in Argentina.

***Institutional Framework: banking regulation and supervision.***

A successful de-regulation of the financial system will *not* be attained by relying only on the effectiveness of 'market discipline', as both the theory of information economics and practical experience of banking crises have proved. The monetary authority must limit the amount of risk assumed by the financial intermediaries and make sure that the financial institutions are managed properly by means of an appropriate policy of prudential regulation and supervision. Besides the compliance with capital adequacy and other legal requirements, the new financial operators should be evaluated for their knowledge, experience, reputation and honesty. That is to say, prudential regulation should ensure that financial agents are 'fit and proper'. Financial policy should impose limits on the amount of liquidity, interest rate, exchange rate and credit risk that banks may assume by restricting lending to sister-firms, foreign exchange exposure, maturity and interest rate mismatches. To avoid excessive loan-default risks, the policy should take notice of the speed at which the financial intermediaries expand their portfolios. It is essential to correct practices and procedures largely biased towards monitoring quantitative rules associated with money supply rather than the *quality of the banks' asset* allocation. The policy of preventing banks from taking risky actions based exclusively on requirements of capital adequacy is mistaken due to the high leverage position of these institutions. As most of a bank's assets are other people's money, the economic incentives generally pay for misbehaviour on the part of the banks. Competent bank supervision is also needed to assess the quality of management and the adequacy of policies, procedures and systems which are used to evaluate, limit and report on risk. As well as being short of information on the allocation of banks' portfolios, the problem of the Central Bank may also lie in the lack of experience and, in all probability, ability

to supervise a swiftly liberalised banking system. Supervisory practices must focus on preventing individual bank failures from becoming systemic problems, as occurred in Argentina in the early 1980s.

***Policy Co-ordination: macro- and micro-economic interactions.***

The connection between macro-economic policies and micro-economic structures runs both ways: on the one hand, the overall macro-economic performance is the result of the actions of micro-economic units and; on the other hand, macro-economic policies have micro-economic consequences. That is to say, what happens at the macro-economic level has an effect on - and is affected by - the actions and reactions of the economic structures at the micro-economic level. This means that in the process of financial de-regulation, besides the appropriate banking regulation and supervision, the macro-economic policies (monetary, fiscal, financial and exchange rate) should be *co-ordinated* to control the evolution (size and speed) of the banking credits, something which did not occur in Argentina. When there is excessive liquidity (credit boom), it is most likely that the standards of banks for screening and selecting projects and borrowers will be relaxed in an attempt to speed up the process of bank lending. This will result in increased lending to high-risk borrowers and a distortion of asset prices, which will have a negative effect on the overall quality of resource allocation in the economy, with two inter-related effects: on the one hand, the level of the country's financial fragility will increase as the risk distribution of the entire banking system is negatively affected and; on the other hand, with a lack of - or highly deficient - banking regulation and supervision, the probability that some financial agents will assume excessive levels of risk and engage in speculative behaviour increases, which will further weaken the macro-financial structure.

***Financial Structure and Economic Activity: real and financial interactions.***

What happens in the financial structure is affected by - and can have an effect on - the evolution and prospects of the real side of the economy. The country's financial structure mirrors the health of the whole economy. Usually, a major financial disruption in which a large proportion of the financial system is at risk is a symptom that the

country is suffering from important macro-economic disequilibria such as deficits in the public and foreign sectors, which leads to misalignments in key relative prices. As can be learnt from the Argentine experience (1977-81), when the real lending rate is very low compared with the return on physical assets, there will be a propensity to accrue excessive levels of debt on the part of bank borrowers (over-indebtedness). Likewise, when the lending rate is very high in real terms, the financial costs will erode the economic bases of bank borrowers, affecting the solvency of the banks themselves. Therefore, in order to build a sound financial structure, it is vital to avoid a large disadjustment for a lengthy period of time between the lending rate charged by banks and the return on physical assets obtained in the real sector by bank borrowers. The necessary formula to achieve this goal is to design a set of *consistent* macro-economic policies (monetary, fiscal, financial and exchange rate), which prevent large imbalances in both the real and financial sectors.

***Informational Problems in Banks: inflation and asymmetric information.***

Banks are particularly subject to market failures arising from asymmetric information. The promise that a credit will be repaid in the future may *not* be wholly sincere, as the applicant for a loan may 'hide information' (adverse selection) and the borrower may 'hide action' (moral hazard) from the bank. Bad loan allocation and their externality-effects are at the root of the market failures caused by asymmetric information. These problems of information are exacerbated in a scenario of high and persistent inflation with a great volatility in relative and absolute prices. Indeed, since price changes affect the real value of nominal variables such as wages, prices, return on assets, stock of money and net worth, lack of certainty about the level of inflation erodes the informational base for both business planning and credit appraisal. Although one can manage prices in nominal terms, what really matters in any economic assessment are the real values. Therefore, in an inflationary context, the productive efficiency of debtors and creditors *no* longer depends only on their business competence but also on the accuracy of their predictions of inflation. In short, problems of asymmetric information make financial markets *special*; and inflation causes *special* problems of

economic information. For this reason, a financial liberalisation reform should *not* be implemented in a scenario of high and unstable inflation like that of Argentina during the period 1977-81.

***Bank Soundness and Macro-economic Stability.***

The relationship between the banking system and the macro-economy requires special attention for two main reasons: first, a well-functioning banking system is important for the effectiveness of macro-economic policies; and second, weaknesses which emerge in the banking system, if ignored, could pose a threat to the macro-economic stability. The banking system is the main conduit through which monetary policy is transmitted: the expansion and contraction of monetary aggregates and movements in the interest rates. Thereby, the quality of this channel of monetary transmission (banking system) is vital for the effectiveness of any monetary policy in the management of key variables such as the levels of activity, prices and foreign exchange. The experience of Argentina has shown that an unsound bank may change its incentive structure by raising the lending rate charged to its borrowers and by offering higher interest rates to attract deposits from competitors, in an attempt to alleviate its problems of liquidity and profitability. What is more, it is extremely likely that an unsound bank will continue lending to unprofitable firms and to insolvent debtors to prevent defaults that would in turn result in open insolvency for the bank. In this situation, a widening of the financial spreads is often employed to cover the cost of non-performing loans. When this perverse functioning of banks is widespread and the movements in interest rates no longer reflect the supply and demand conditions in financial markets, the effectiveness of monetary policy declines and the allocation of resources in the economy becomes inefficient. The economic consequences will be even worse if the weakening of banks is perceived by individuals, which may trigger a deposit run and cause a financial crisis, as happened in Argentina at the beginning of the 1980s. All this suggests that a *fundamental goal* of any economic plan should be to maintain a sound banking system. The findings of this dissertation may be useful for those countries considering the liberalisation of their domestic financial systems to achieve this objective.

# APPENDICES

## CHAPTER III: APPENDIX A

## Chronology of Key Political and Economic Events, 1945-75

| | |
|---|---|
| 1945 | Argentina enters World War II on the side of the Allies and is admitted as a founding member of United Nations. Perón arrested then freed after major popular protest by the working class, those known as the '*Descamizados*'. |
| 1946 | Perón wins elections for the presidency, promising workers higher wages and social security. His wife, Eva Duarte ('Evita'), is put in charge of labour relations in the new government. Industrialisation by import substitution model (ISI) established. Banking system nationalised. Growing government intervention in market prices. |
| 1949 | A new National Constitution is approved, strengthening the power of the president. The Peronist Party is formed |
| 1951 | Perón is re-elected president with a huge majority (67% of vote). |
| 1952 | Eva Duarte, Perón's wife dies. Perón's support among the army, church and middle classes begins to decline. |
| 1955 June | An attempted coup by the Argentine navy is crushed as the army remains loyal to Peron. |
| 1955 Sept. | Coup by all three branches of the armed forces succeeds after three days of fighting, during which thousands are killed (Revolución Libertadora). Perón resigns and goes into exile in Paraguay, and later in Spain. The federal constitution of 1853 is restored and Personist Party banned. |
| 1955 | Gen. Pedro Eugenio Aramburu becomes president. Price control lifted and banking system de-regulated. IAPI is abolished. Argentina joins IMF and. |
| 1958 | Arturo Frondizi (Radical Party) becomes president and applies anti-inflationary plan agreed with IMF. ISI continues with emphasis on heavy industry (steel, chemicals, petro-chemicals) and motor-vehicles. Investment in infrastructure. New law gives equal treatment to local and foreign investment. Free capital movement (*Desarrolismo)*. |
| 1962 | Arturo Frondizi deposed by military coup. |
| 1963 | Arturo Illia (Radical Party) is elected president. Attempt to re-activate the economy fostering private and public consumption. Contracts with foreign oil companies rescinded. |
| 1966 | Military rule is imposed again with a coup led by Gen. Juan Carlos Onganía. Primary goal, control inflation and close the fiscal gap. |
| 1970 | Growing labour and political unrest leads military to oust Onganía. Gen. Roberto Levingston takes office. Gives new impulse to ISI returning to *Desarrollismo*. |
| 1971 | Gen. Alejandro A. Lanusse comes to power and under pressure from political parties announces presidential elections for March 1973. Peron declares intention to return to Argentina. |
| 1973 | The Peronist party led by Cámpora wins elections. Violence breaks out between left-and-right-wind factions within Peronism. Argentina is wracked by terrorist violence. Perón becomes president in September. María Estela Martínez (*Isabelita*), Perón's third wife, is made vice-president amid social tension and violence. Social Pact with growing government intervention. Expansionist monetary and fiscal policies. Central Bank takes control of deposits in banks and credit allocation. |
| 1974 | Peron dies in July. His wife (*Isabelita*), succeeds him in an increasingly divided nation. Terrorism from right and left escalates. Strikes, demonstrations, high and growing inflation. |
| 1976 | Isabelita deposed by the armed forces. Gen. Jorge Videla assumes the presidency. |

## CHAPTER III: APPENDIX B

## Chronology of the Institutional and Economic Reforms, 1976-81

*INSTITUTIONAL CHANGES*

| | |
|---|---|
| March 1976 | Military coup against President Maria Estela Martinez de Perón (*Isabelita*). The junta of commanders-in-chief designate General Jorge Rafael Videla as President. José Alfredo Martinez de Hoz is designated Economic Minister. |
| October 1980 | The junta designate General Roberto Eduardo Viola as President Elect to take charge in March 1981. |
| March 1981 | President Viola appoints Lorenzo Sigaut as Minister of Economy. |
| December 1981 | The junta fire General Viola and appoint General Leopoldo Fortunato Galtieri as President. |

*COMMERCIAL POLICY REFORMS*

| | |
|---|---|
| Note: | (BCRA) means the Central Bank of Argentina. (Banco Central de la República Argentina. |
| April 1976 | Economic Minister Martínez de Hoz announces a program of promotion of foreign trade oriented, towards eliminating quantitative and financial restrictions to eliminate 'water' in nominal tariffs. |
| January 1977 | BCRA Circular R.C. no. 674 authorises cash payments no later than 180 days for imports of some foodstuffs. Circular R.C. no. 678 authorises cash payments no later than 180 days for current imports: 100% of the FOB value for transactions up to US $25,000 and 75% for transactions in excess of US $25,000. |
| March 1977 | BCRA Circular R.C. no. 685 authorises cash payments of 100% of the value of current imports immediately after presenting the shipping invoice. |
| May 1977 | BCRA Circular R.C. no. 693 introduces modifications to the system of financial promotion of exports; the Central Bank can discount hills of exchange in foreign currencies at preannounced interest rates. |
| July 1977 | BCRA Circular R.C. no. 701 authorises cash payments for imports of capital goods in excess of US$ 50,00 when the importer provides its own foreign exchange. |
| March 1978 | BCRA Circular R.C. no. 727 regulates the servicing of loans in foreign currencies related to financing of exports. Payments cannot exceed 180 days, and the amortisation is simultaneous with the reception of foreign currencies. |
| April 1978 | BCRA Circular R.C. no. 733 regulates the financing of imports. Loans obtained through financial institutions should not exceed 180 days. |
| June 1978 | BCRA Circular R.C. no. 760 modifies the financing schedule of imports of capital goods eliminating the restrictions on purchases of less than US $5,000,000.<br>BCRA Circular R.C. no. 809 eliminates the requirement of pesos deposits for any Operation related to financing foreign trade. |
| December 1976 | The economic minister announces his intention to further push the opening of the economy by proposing a program of tariff reform consisting of a schedule of gradual tariff reductions for five years. The average tariff is to fall from 34% in 1980 to 16% in 1986. and export taxes are to fall from 16% in 1980 to 0% in 1986. Non-tariff restrictions, which averaged 24% in 1980, remain unaltered. |
| June 1979 | Resolution no. 6 of the Secretary of Commerce accelerates the tariff reductions. |

## CHAPTER III: APPENDIX B

*EXCHANGE RATES AND FINANCIAL REFORMS*

| | |
|---|---|
| April 1976 | Economic Minister Martinez de Hoz announces a programme to reduce the prevailing multiple exchange rate system to a system with only two exchange rates: commercial rate for trade operations and a financial rate for financial transactions. Both exchange rates nominally fixed by the Central Bank with periodic adjustments. |
| May 1976 | According to Law No. 21308 beneficiaries of loans in the financial system must pay an 8.5% tax per semester. This law is a preliminary attempt to gradually correct the negative real interest rates prevailing in the system. |
| July 1976 | BCRA Circular R.C. no. 642 states that new loans without exchange rate insurance can be negotiated at the exchange rate prevailing in the free financial market for foreign exchange. Loans with a maturity of less than 180 days are not allowed. |
| January 1977 | Law no. 21495 essentially repeals Law no. 20520, which nationalised bank deposits. Law no, 21526 regulates the activities of financial institutions under a system of fractional reserve requirements, and extends the Central Bank guarantee of deposits to all authorised institution. |
| February 1977 | Law no. 21572 introduces the interest equalisation account. BCRA Circular R.C. no. 716, authorises without any restriction foreign exchange transactions in values lower or equal to US $5,000. |
| January 1978 | BCRA Circular R.C. no. 761 authorises without restriction foreign exchange transactions up to US $10,000. |
| Sept. 1978 | BCRA Circular R.C. no. 778 authorises without restriction foreign exchange transactions up to US $20,000. |
| October 1978 | BCRA Circular R.C. no. 790 authorises operations in gold coins in bureaus of exchange. |
| Dec. 1978 | BCRA Circular R.C. no. 807 announces a daily exchange rate for the US dollar from December 21, 1978 to August 31, 1979. |
| April 1979 | BCRA Circular R.C. no. 832, announces a daily exchange rate from September I. 1979, to December 31, 1979. |
| October 1979 | BCRA Circular R.C. no. 853 announces a 2.8% devaluation for January 1980; furthermore, in the months following January the peso devaluation would he equal to the previous month's devaluation less 0.2%. |
| April 1980 | BCRA Circular R.P. no. 1050 authorises a new method of indexation based on an average of interest rate on deposits. |
| April 1980 | BCRA Circular R.P. no. 1051 regulates the rediscount system and increases the official guaranty on deposits. |
| Sept. 1980 | BCRA Circular R.C. no. 907 announces a 1% devaluation for October and 1% for the following months. |
| Dec. 1980 | BCRA Circular R.C. no. 916 establishes the following regulation limits: pesos per U.S. dollar: |

| *Date* | *Buy* | *Sell* |
|---|---|---|
| 21/12/1980 | 1.989 | 1.996 |
| 30/01/1981 | 2.009 | 2.036 |
| 27/02/1981 | 2.029 | 2.077 |
| 03/01/1981 | 2.049 | 2.118 |

*INCOME POLICY REFORMS*

| | |
|---|---|
| April 1976 | Prices gradually liberated and nominal wages adjusted periodically (Law No. 21307). |
| March 1977 | The Minister of Economy announces a price truce and the secretary of commerce dictates Resolution 189, establishing price controls for 120 days. Relevant wages and prices mostly market determined between July 1977 and December 1981. |

## CHAPTER IV: APPENDIX

### Matrix of Stocks of Assets and Liabilities of Argentina (% of GDP)

| | SECTORS | | | | | | |
|---|---|---|---|---|---|---|---|
| Apr.-76 ASSETS | CENTRAL BANK | FINANCIAL SECTOR | PRIVATE SECTOR | GOVERN. SECTOR | REST OF THE WORLD | ADDING | TOTAL ASSETS |
| 1.mon | -3.93 | -2.94 | 6.87 | | | 0.00 | 6.87 |
| 2.res | -12.43 | 12.43 | | | | 0.00 | 12.43 |
| 3.ccbg | 0.23 | | | -0.23 | | 0.00 | 0.23 |
| 4.dgbc | -0.10 | | | 0.10 | | 0.00 | 0.10 |
| 5.red | 10.73 | -10.73 | | | | 0.00 | 10.73 |
| 6.sad | | -4.20 | 1.48 | 2.71 | | 0.00 | 4.20 |
| 7.tip | | -1.59 | 1.59 | | | 0.00 | 1.59 |
| 8.cred | | 9.05 | -6.66 | -2.39 | | 0.00 | 9.05 |
| 9.bon | 4.43 | 0.14 | 0.89 | -5.46 | | 0.00 | 5.46 |
| 10.jnv | 1.31 | -0.46 | | | -0.85 | 0.00 | 0.85 |
| 11.jdep | | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| 12.jcred | | 0.89 | -0.89 | 0.00 | | 0.00 | 0.89 |
| 13.jbon | | 0.01 | | -7.82 | 7.81 | 0.00 | 7.82 |
| totass | 16.70 | 22.07 | 10.84 | 2.81 | 7.81 | | 60.22 |
| totliab | -16.46 | -19.45 | -7.55 | -15.90 | -0.85 | | -60.22 |
| nfw | 0.24 | 2.62 | 3.28 | -13.10 | 6.96 | 0.00 | 0.00 |
| jtotass | 1.31 | 0.91 | 0.00 | 0.00 | 7.81 | | 10.02 |
| jtotliab | 0.00 | -0.46 | -0.89 | -7.82 | -0.85 | | -10.02 |
| jnfw | 1.31 | 0.45 | -0.89 | -7.82 | 6.96 | 0.00 | |

Source: own construction based on data of the Central Bank of Argentina.

| | SECTORS | | | | | | |
|---|---|---|---|---|---|---|---|
| Jul-77 ASSETS | CENTRAL BANK | FINANCIAL SECTOR | PRIVATE SECTOR | GOVERN. SECTOR | REST OF THE WORLD | ADDING | TOTAL ASSETS |
| 1.mon | -5.80 | -2.50 | 8.30 | | | 0.00 | 8.30 |
| 2.res | -0.07 | 0.07 | | | | 0.00 | 0.07 |
| 3.ccbg | 1.60 | | | -1.60 | | 0.00 | 1.60 |
| 4.dgbc | -0.61 | | | 0.61 | | 0.00 | 0.61 |
| 5.red | 0.84 | -0.84 | | | | 0.00 | 0.84 |
| 6.sad | | -6.79 | 2.27 | 4.52 | | 0.00 | 6.79 |
| 7.tip | | -10.15 | 10.15 | | | 0.00 | 10.15 |
| 8.cred | | 19.38 | -16.25 | -3.13 | | 0.00 | 19.38 |
| 9.bon | 3.92 | 0.88 | 1.31 | -6.11 | | 0.00 | 6.11 |
| 10.jnv | 5.79 | -1.24 | | | -4.55 | 0.00 | 4.55 |
| 11.jdep | | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 |
| 12.jcred | | 1.56 | -1.56 | 0.00 | | 0.00 | 1.56 |
| 13.jbon | | 0.01 | | -10.09 | 10.08 | 0.00 | 10.09 |
| totass | 12.14 | 20.65 | 22.03 | 5.13 | 10.08 | | 70.04 |
| totliab | -6.48 | -20.28 | -17.80 | -20.92 | -4.55 | | -70.04 |
| nfw | 5.66 | 0.38 | 4.22 | -15.80 | 5.53 | 0.00 | 0.00 |
| jtotass | 5.79 | 1.56 | 0.00 | 0.00 | 10.08 | | 17.44 |
| jtotliab | 0.00 | -1.24 | -1.56 | -10.09 | -4.55 | | -17.44 |
| jnfw | 5.79 | 0.32 | -1.56 | -10.09 | 5.53 | 0.00 | |

Source: own construction based on data of the Central Bank of Argentina.

## CHAPTER IV: APPENDIX

### Matrix of Stocks of Assets and Liabilities of Argentina (% of GDP)

| | SECTORS | | | | | | |
|---|---|---|---|---|---|---|---|
| Dic-78 ASSETS | CENTRAL BANK | FINANCIAL SECTOR | PRIVATE SECTOR | GOVERN. SECTOR | REST OF THE WORLD | ADDING | TOTAL ASSETS |
| 1.mon | -6.28 | -1.83 | 8.10 | | | 0.00 | 8.10 |
| 2.res | -4.15 | 4.15 | | | | 0.00 | 4.15 |
| 3.ccbg | 2.52 | | | -2.52 | | 0.00 | 2.52 |
| 4.dgbc | -0.06 | | | 0.06 | | 0.00 | 0.06 |
| 5.red | 0.92 | -0.92 | | | | 0.00 | 0.92 |
| 6.sad | | -6.03 | 1.89 | 4.14 | | 0.00 | 6.03 |
| 7.tip | | -15.22 | 15.22 | | | 0.00 | 15.22 |
| 8.cred | | 22.69 | -17.78 | -4.91 | | 0.00 | 22.69 |
| 9.bon | 1.49 | 1.31 | 2.50 | -5.30 | | 0.00 | 5.30 |
| 10.jnv | 6.10 | -2.28 | | | -3.83 | 0.00 | 6.10 |
| 11.jdep | | -0.14 | 0.14 | 0.00 | | 0.00 | 0.14 |
| 12.jcred | | 1.99 | -1.99 | 0.00 | | 0.00 | 1.99 |
| 13.jbon | | 0.60 | | -12.68 | 12.08 | 0.00 | 12.68 |
| Totass | 11.02 | 30.74 | 27.85 | 4.21 | 12.08 | | 85.91 |
| Totliab | -10.49 | -26.41 | -19.77 | -25.41 | -3.83 | | -85.91 |
| Nfw | 0.53 | 4.33 | 8.08 | -21.20 | 8.26 | 0.00 | |
| Jtotass | 6.10 | 2.59 | 0.14 | 0.00 | 12.08 | | 20.92 |
| Jtotliab | 0.00 | -2.42 | -1.99 | -12.68 | -3.83 | | -20.92 |
| jnfw | 6.10 | 0.17 | -1.85 | -12.68 | 8.26 | 0.00 | |

Source: own construction based on data of the Central Bank of Argentina.

| | SECTORS | | | | | | |
|---|---|---|---|---|---|---|---|
| Mar-80 ASSETS | CENTRAL BANK | FINANCIAL SECTOR | PRIVATE SECTOR | GOVERN. SECTOR | REST OF THE WORLD | ADDING | TOTAL ASSETS |
| 1.mon | -5.78 | -2.49 | 8.27 | | | 0.00 | 8.27 |
| 2.res | -1.35 | 1.35 | | | | 0.00 | 1.35 |
| 3.ccbg | 1.58 | | | -1.58 | | 0.00 | 1.58 |
| 4.dgbc | -0.04 | | | 0.04 | | 0.00 | 0.04 |
| 5.red | 0.46 | -0.46 | | | | 0.00 | 0.46 |
| 6.sad | | -6.16 | 1.78 | 4.39 | | 0.00 | 6.16 |
| 7.tip | | -21.92 | 21.92 | | | 0.00 | 21.92 |
| 8.cred | | 35.30 | -28.78 | -6.52 | | 0.00 | 35.30 |
| 9.bon | 0.54 | 1.87 | 2.54 | -4.95 | | 0.00 | 4.95 |
| 10.jnv | 4.88 | -4.09 | | | -0.79 | 0.00 | 4.88 |
| 11.jdep | | -0.30 | 0.30 | 0.00 | | 0.00 | 0.30 |
| 12.jcred | | 4.17 | -4.17 | 0.00 | | 0.00 | 4.17 |
| 13.jbon | | 0.54 | | -19.38 | 18.84 | 0.00 | 19.38 |
| totass | 7.46 | 43.21 | 34.80 | 4.42 | 18.84 | | 108.74 |
| totliab | -7.16 | -35.42 | -32.94 | -32.43 | -0.79 | | -108.74 |
| nfw | 0.30 | 7.79 | 1.86 | -28.00 | 18.06 | 0.00 | |
| jtotass | 4.88 | 4.70 | 0.30 | 0.00 | 18.84 | | 28.73 |
| jtotliab | 0.00 | -4.39 | -4.17 | -19.38 | -0.79 | | -28.73 |
| jnfw | 4.88 | 0.31 | -3.87 | -19.38 | 18.06 | 0.00 | |

Source: own construction based on data of the Central Bank of Argentina.

## CHAPTER IV: APPENDIX

### Matrix of Stocks of Assets and Liabilities of Argentina (% of GDP)

| | SECTORS | | | | | | |
|---|---|---|---|---|---|---|---|
| Abr-80 ASSETS | CENTRAL BANK | FINANCIAL SECTOR | PRIVATE SECTOR | GOVERN. SECTOR | REST OF THE WORLD | ADDING | TOTAL ASSETS |
| 1.mon | -5.85 | -2.28 | 8.13 | | | 0.00 | 8.13 |
| 2.res | -1.34 | 1.34 | | | | 0.00 | 1.34 |
| 3.ccbg | 1.27 | | | -1.27 | | 0.00 | 1.27 |
| 4.dgbc | -0.08 | | | 0.08 | | 0.00 | 0.08 |
| 5.red | 2.64 | -2.64 | | | | 0.00 | 2.64 |
| 6.sad | | -6.34 | 1.86 | 4.48 | | 0.00 | 6.34 |
| 7.tip | | -20.53 | 20.53 | | | 0.00 | 20.53 |
| 8.cred | | 35.57 | -28.37 | -7.20 | | 0.00 | 35.57 |
| 9.bon | 0.51 | 2.58 | 2.89 | -5.98 | | 0.00 | 5.98 |
| 10.jnv | 3.83 | -3.94 | | | 0.11 | 0.00 | 3.83 |
| 11.jdep | | -0.31 | 0.31 | 0.00 | | 0.00 | 0.31 |
| 12.jcred | | 4.08 | -4.08 | 0.00 | | 0.00 | 4.08 |
| 13.jbon | | 0.61 | | -19.97 | 19.36 | 0.00 | 19.97 |
| totass | 8.24 | 44.18 | 33.73 | 4.55 | 19.36 | | 110.07 |
| totliab | -7.27 | -36.05 | -32.44 | -34.42 | 0.11 | | -110.07 |
| nfw | 0.97 | 8.14 | 1.29 | -29.87 | 19.47 | 0.00 | |
| jtotass | 3.83 | 4.69 | 0.31 | 0.00 | 19.36 | | 28.19 |
| jtotliab | 0.00 | -4.26 | -4.08 | -19.97 | 0.11 | | -28.19 |
| jnfw | 3.83 | 0.43 | -3.77 | -19.97 | 19.47 | 0.00 | |

Source: own construction based on data of the Central Bank of Argentina.

| | SECTORS | | | | | | |
|---|---|---|---|---|---|---|---|
| May-80 ASSETS | CENTRAL BANK | FINANCIAL SECTOR | PRIVATE SECTOR | GOVERN. SECTOR | REST OF THE WORLD | ADDING | TOTAL ASSETS |
| 1.mon | -5.74 | -2.11 | 7.85 | | | 0.00 | 7.85 |
| 2.res | -1.69 | 1.69 | | | | 0.00 | 1.69 |
| 3.ccbg | 1.19 | | | -1.19 | | 0.00 | 1.19 |
| 4.dgbc | -0.09 | | | 0.09 | | 0.00 | 0.09 |
| 5.red | 3.41 | -3.41 | | | | 0.00 | 3.41 |
| 6.sad | | -6.73 | 2.05 | 4.68 | | 0.00 | 6.73 |
| 7.tip | | -19.61 | 19.61 | | | 0.00 | 19.61 |
| 8.cred | | 33.53 | -26.93 | -6.60 | | 0.00 | 33.53 |
| 9.bon | 0.48 | 2.02 | 2.78 | -5.28 | | 0.00 | 5.28 |
| 10.jnv | 2.78 | -3.80 | | | 1.01 | 0.00 | 2.78 |
| 11.jdep | | -0.33 | 0.33 | 0.00 | | 0.00 | 0.33 |
| 12.jcred | | 3.93 | -3.93 | 0.00 | | 0.00 | 3.93 |
| 13.jbon | | 0.59 | | -20.57 | 19.98 | 0.00 | 20.57 |
| totass | 7.86 | 41.77 | 32.61 | 4.77 | 19.98 | | 106.99 |
| totliab | -7.52 | -35.99 | -30.86 | -33.64 | 1.01 | | -106.99 |
| nfw | 0.35 | 5.77 | 1.75 | -28.86 | 21.00 | 0.00 | |
| jtotass | 2.78 | 4.52 | 0.33 | 0.00 | 19.98 | | 27.62 |
| jtotliab | 0.00 | -4.13 | -3.93 | -20.57 | 1.01 | | -27.62 |
| jnfw | 2.78 | 0.40 | -3.60 | -20.57 | 21.00 | 0.00 | |

Source: own construction based on data of the Central Bank of Argentina.

## CHAPTER IV: APPENDIX

### Matrix of Stocks of Assets and Liabilities of Argentina (% of GDP)

| | SECTORS | | | | | | |
|---|---|---|---|---|---|---|---|
| Jun-80 ASSETS | CENTRAL BANK | FINANCIAL SECTOR | PRIVATE SECTOR | GOVERN. SECTOR | REST OF THE WORLD | ADDING | TOTAL ASSETS |
| 1.mon | -5.95 | -2.23 | 8.18 | | | 0.00 | 8.18 |
| 2.res | -1.22 | 1.22 | | | | 0.00 | 1.22 |
| 3.ccbg | 1.51 | | | -1.51 | | 0.00 | 1.51 |
| 4.dgbc | -0.01 | | | 0.01 | | 0.00 | 0.01 |
| 5.red | 3.35 | -3.35 | | | | 0.00 | 3.35 |
| 6.sad | | -6.72 | 1.98 | 4.74 | | 0.00 | 6.72 |
| 7.tip | | -19.35 | 19.35 | | | 0.00 | 19.35 |
| 8.cred | | 33.57 | -27.24 | -6.33 | | 0.00 | 33.57 |
| 9.bon | 0.45 | 2.24 | 2.19 | -4.88 | | 0.00 | 4.88 |
| 10.jnv | 3.27 | -3.80 | | | 0.54 | 0.00 | 3.27 |
| 11.jdep | | -0.38 | 0.38 | 0.00 | | 0.00 | 0.38 |
| 12.jcred | | 3.95 | -3.95 | 0.00 | | 0.00 | 3.95 |
| 13.jbon | | 0.57 | | -21.20 | 20.63 | 0.00 | 21.20 |
| Totass | 8.57 | 41.54 | 32.08 | 4.75 | 20.63 | | 107.57 |
| Totliab | -7.17 | -35.83 | -31.19 | -33.91 | 0.54 | | -107.57 |
| Nfw | 1.40 | 5.71 | 0.89 | -29.16 | 21.16 | 0.00 | |
| Jtotass | 3.27 | 4.52 | 0.38 | 0.00 | 20.63 | | 28.80 |
| Jtotliab | 0.00 | -4.19 | -3.95 | -21.20 | 0.54 | | -28.80 |
| Jnfw | 3.27 | 0.34 | -3.57 | -21.20 | 21.16 | 0.00 | |

Source: own construction based on data of the Central Bank of Argentina

| | SECTORS | | | | | | |
|---|---|---|---|---|---|---|---|
| Jul-80 ASSETS | CENTRAL BANK | FINANCIAL SECTOR | PRIVATE SECTOR | GOVERN. SECTOR | REST OF THE WORLD | ADDING | TOTAL ASSETS |
| 1.mon | -5.70 | -1.63 | 7.33 | | | 0.00 | 7.33 |
| 2.res | -2.65 | 2.65 | | | | 0.00 | 2.65 |
| 3.ccbg | 2.22 | | | -2.22 | | 0.00 | 2.22 |
| 4.dgbc | -0.05 | | | 0.05 | | 0.00 | 0.05 |
| 5.red | 3.48 | -3.48 | | | | 0.00 | 3.48 |
| 6.sad | | -6.57 | 1.84 | 4.73 | | 0.00 | 6.57 |
| 7.tip | | -20.35 | 20.35 | | | 0.00 | 20.35 |
| 8.cred | | 32.47 | -26.65 | -5.82 | | 0.00 | 32.47 |
| 9.bon | 0.42 | 1.46 | 2.33 | -4.21 | | 0.00 | 4.21 |
| 10.jnv | 3.15 | -4.05 | | | 0.90 | 0.00 | 3.15 |
| 11.jdep | | -0.36 | 0.36 | 0.00 | | 0.00 | 0.36 |
| 12.jcred | | 4.08 | -4.08 | 0.00 | | 0.00 | 4.08 |
| 13.jbon | | 0.46 | | -21.84 | 21.38 | 0.00 | 21.84 |
| totass | 9.27 | 41.12 | 32.21 | 4.78 | 21.38 | | 108.76 |
| totliab | -8.40 | -36.44 | -30.74 | -34.08 | 0.90 | | -108.76 |
| nfw | 0.86 | 4.69 | 1.47 | -29.31 | 22.28 | 0.00 | |
| jtotass | 3.15 | 4.54 | 0.36 | 0.00 | 21.38 | | 29.43 |
| jtotliab | 0.00 | -4.41 | -4.08 | -21.84 | 0.90 | | -29.43 |
| jnfw | 3.15 | 0.13 | -3.73 | -21.84 | 22.28 | 0.00 | |

Source: own construction based on data of the Central Bank of Argentina.

## CHAPTER IV: APPENDIX

### Matrix of Stocks of Assets and Liabilities of Argentina (% of GDP)

| | SECTORS | | | | | | |
|---|---|---|---|---|---|---|---|
| Ago-80 ASSETS | CENTRAL BANK | FINANCIAL SECTOR | PRIVATE SECTOR | GOVERN. SECTOR | REST OF THE WORLD | ADDING | TOTAL ASSETS |
| 1.mon | -5.47 | -1.98 | 7.45 | | | 0.00 | 7.45 |
| 2.res | -1.51 | 1.51 | | | | 0.00 | 1.51 |
| 3.ccbg | 1.28 | | | -1.28 | | 0.00 | 1.28 |
| 4.dgbc | -0.06 | | | 0.06 | | 0.00 | 0.06 |
| 5.red | 3.15 | -3.15 | | | | 0.00 | 3.15 |
| 6.sad | | -6.75 | 1.96 | 4.79 | | 0.00 | 6.75 |
| 7.tip | | -20.90 | 20.90 | | | 0.00 | 20.90 |
| 8.cred | | 33.91 | -27.25 | -6.66 | | 0.00 | 33.91 |
| 9.bon | 0.40 | 2.69 | 2.35 | -5.44 | | 0.00 | 5.44 |
| 10.jnv | 2.93 | -4.25 | | | 1.32 | 0.00 | 2.93 |
| 11.jdep | | -0.38 | 0.38 | 0.00 | | 0.00 | 0.38 |
| 12.jcred | | 4.62 | -4.16 | -0.46 | | 0.00 | 4.62 |
| 13.jbon | | 0.39 | | -22.51 | 22.12 | 0.00 | 22.51 |
| totass | 7.77 | 43.12 | 33.04 | 4.86 | 22.12 | | 110.90 |
| totliab | -7.03 | -37.42 | -31.41 | -36.35 | 1.32 | | -110.90 |
| nfw | 0.73 | 5.69 | 1.63 | -31.50 | 23.44 | 0.00 | |
| jtotass | 2.93 | 5.01 | 0.38 | 0.00 | 22.12 | | 30.44 |
| jtotliab | 0.00 | -4.63 | -4.16 | -22.97 | 1.32 | | -30.44 |
| jnfw | 2.93 | 0.38 | -3.78 | -22.97 | 23.44 | 0.00 | |

Source: own construction based on data of the Central Bank of Argentina.

| | SECTORS | | | | | | |
|---|---|---|---|---|---|---|---|
| Sep-80 ASSETS | CENTRAL BANK | FINANCIAL SECTOR | PRIVATE SECTOR | GOVERN. SECTOR | REST OF THE WORLD | ADDING | TOTAL ASSETS |
| 1.mon | -5.68 | -1.95 | 7.63 | | | 0.00 | 7.63 |
| 2.res | -1.50 | 1.50 | | | | 0.00 | 1.50 |
| 3.ccbg | 2.27 | | | -2.27 | | 0.00 | 2.27 |
| 4.dgbc | -0.04 | | | 0.04 | | 0.00 | 0.04 |
| 5.red | 3.06 | -3.06 | | | | 0.00 | 3.06 |
| 6.sad | | -6.92 | 2.02 | 4.90 | | 0.00 | 6.92 |
| 7.tip | | -20.86 | 20.86 | | | 0.00 | 20.86 |
| 8.cred | | 33.98 | -28.03 | -5.95 | | 0.00 | 33.98 |
| 9.bon | 0.39 | 2.00 | 2.20 | -4.58 | | 0.00 | 4.58 |
| 10.jnv | 2.14 | -4.02 | | | 1.88 | 0.00 | 2.14 |
| 11.jdep | | -0.51 | 0.51 | 0.00 | | 0.00 | 0.51 |
| 12.jcred | | 4.56 | -4.12 | -0.44 | | 0.00 | 4.56 |
| 13.jbon | | 0.38 | | -23.19 | 22.81 | 0.00 | 23.19 |
| totass | 7.85 | 42.42 | 33.22 | 4.94 | 22.81 | | 111.24 |
| totliab | -7.22 | -37.31 | -32.15 | -36.44 | 1.88 | | -111.24 |
| nfw | 0.63 | 5.11 | 1.07 | -31.50 | 24.68 | 0.00 | |
| jtotass | 2.14 | 4.94 | 0.51 | 0.00 | 22.81 | | 30.40 |
| jtotliab | 0.00 | -4.53 | -4.12 | -23.63 | 1.88 | | -30.40 |
| jnfw | 2.14 | 0.41 | -3.61 | -23.63 | 24.68 | 0.00 | |

Source: own construction based on data of the Central Bank of Argentina.

## CHAPTER IV: APPENDIX

### Matrix of Stocks of Assets and Liabilities of Argentina (% of GDP)

| | SECTORS | | | | | | |
|---|---|---|---|---|---|---|---|
| Oct-80 ASSETS | CENTRAL BANK | FINANCIAL SECTOR | PRIVATE SECTOR | GOVERN. SECTOR | REST OF THE WORLD | ADDING | TOTAL ASSETS |
| 1.mon | -5.18 | -1.99 | 7.16 | | | 0.00 | 7.16 |
| 2.res | -1.64 | 1.64 | | | | 0.00 | 1.64 |
| 3.ccbg | 2.39 | | | -2.39 | | 0.00 | 2.39 |
| 4.dgbc | -0.04 | | | 0.04 | | 0.00 | 0.04 |
| 5.red | 2.83 | -2.83 | | | | 0.00 | 2.83 |
| 6.sad | | -6.70 | 1.94 | 4.76 | | 0.00 | 6.70 |
| 7.tip | | -19.63 | 19.63 | | | 0.00 | 19.63 |
| 8.cred | | 32.06 | -26.86 | -5.20 | | 0.00 | 32.06 |
| 9.bon | 0.68 | 1.28 | 2.11 | -4.08 | | 0.00 | 4.08 |
| 10.jnv | 1.51 | -3.62 | | | 2.11 | 0.00 | 1.51 |
| 11.jdep | | -0.55 | 0.55 | 0.00 | | 0.00 | 0.55 |
| 12.jcred | | 4.27 | -3.94 | -0.33 | | 0.00 | 4.27 |
| 13.jbon | | 0.42 | | -23.89 | 23.47 | 0.00 | 23.89 |
| Totass | 7.42 | 39.66 | 31.40 | 4.80 | 23.47 | | 106.76 |
| Totliab | -6.85 | -35.32 | -30.80 | -35.89 | 2.11 | | -106.76 |
| Nfw | 0.57 | 4.34 | 0.60 | -31.09 | 25.58 | 0.00 | |
| Jtotass | 1.51 | 4.69 | 0.55 | 0.00 | 23.47 | | 30.23 |
| Jtotliab | 0.00 | -4.17 | -3.94 | -24.23 | 2.11 | | -30.23 |
| Jnfw | 1.51 | 0.52 | -3.39 | -24.23 | 25.58 | 0.00 | |

Source: own construction based on data of the Central Bank of Argentina.

| | SECTORS | | | | | | |
|---|---|---|---|---|---|---|---|
| Nov-80 ASSETS | CENTRAL BANK | FINANCIAL SECTOR | PRIVATE SECTOR | GOVERN. SECTOR | REST OF THE WORLD | ADDING | TOTAL ASSETS |
| 1.mon | -5.49 | -1.83 | 7.32 | | | 0.00 | 7.32 |
| 2.res | -1.05 | 1.05 | | | | 0.00 | 1.05 |
| 3.ccbg | 2.51 | | | -2.51 | | 0.00 | 2.51 |
| 4.dgbc | -0.12 | | | 0.12 | | 0.00 | 0.12 |
| 5.red | 3.16 | -3.16 | | | | 0.00 | 3.16 |
| 6.sad | | -6.92 | 2.05 | 4.87 | | 0.00 | 6.92 |
| 7.tip | | -19.51 | 19.51 | | | 0.00 | 19.51 |
| 8.cred | | 32.65 | -27.30 | -5.35 | | 0.00 | 32.65 |
| 9.bon | 0.66 | 1.25 | 2.27 | -4.18 | | 0.00 | 4.18 |
| 10.jnv | 0.93 | -3.54 | | | 2.61 | 0.00 | 0.93 |
| 11.jdep | | -0.58 | 0.58 | 0.00 | | 0.00 | 0.58 |
| 12.jcred | | 4.20 | -3.78 | -0.42 | | 0.00 | 4.20 |
| 13.jbon | | 0.52 | | -24.62 | 24.10 | 0.00 | 24.62 |
| totass | 7.25 | 39.68 | 31.72 | 4.99 | 24.10 | | 107.74 |
| totliab | -6.67 | -35.53 | -31.08 | -37.07 | 2.61 | | -107.74 |
| nfw | 0.59 | 4.14 | 0.64 | -32.08 | 26.71 | 0.00 | |
| jtotass | 0.93 | 4.72 | 0.58 | 0.00 | 24.10 | | 30.32 |
| jtotliab | 0.00 | -4.12 | -3.78 | -25.04 | 2.61 | | -30.32 |
| jnfw | 0.93 | 0.60 | -3.20 | -25.04 | 26.71 | 0.00 | |

Source: own construction based on data of the Central Bank of Argentina.

## CHAPTER IV: APPENDIX

### Matrix of Stocks of Assets and Liabilities of Argentina (% of GDP)

| | SECTORS | | | | | | |
|---|---|---|---|---|---|---|---|
| Dic-80 ASSETS | CENTRAL BANK | FINANCIAL SECTOR | PRIVATE SECTOR | GOVERN. SECTOR | REST OF THE WORLD | ADDING | TOTAL ASSETS |
| 1.mon | -6.70 | -2.18 | 8.88 | | | 0.00 | 8.88 |
| 2.res | -1.12 | 1.12 | | | | 0.00 | 1.12 |
| 3.ccbg | 2.34 | | | -2.34 | | 0.00 | 2.34 |
| 4.dgbc | -0.01 | | | 0.01 | | 0.00 | 0.01 |
| 5.red | 3.86 | -3.86 | | | | 0.00 | 3.86 |
| 6.sad | | -6.69 | 2.07 | 4.62 | | 0.00 | 6.69 |
| 7.tip | | -19.73 | 19.73 | | | 0.00 | 19.73 |
| 8.cred | | 33.07 | -27.98 | -5.09 | | 0.00 | 33.07 |
| 9.bon | 1.57 | 0.83 | 2.00 | -4.40 | | 0.00 | 4.40 |
| 10.jnv | 0.62 | -3.53 | | | 2.91 | 0.00 | 0.62 |
| 11.jdep | | -0.64 | 0.64 | 0.00 | | 0.00 | 0.64 |
| 12.jcred | | 4.34 | -3.89 | -0.45 | | 0.00 | 4.34 |
| 13.jbon | | 0.52 | | -25.36 | 24.84 | 0.00 | 25.36 |
| totass | 8.39 | 39.89 | 33.32 | 4.63 | 24.84 | | 111.08 |
| totliab | -7.83 | -36.64 | -31.88 | -37.64 | 2.91 | | -111.08 |
| nfw | 0.57 | 3.25 | 1.45 | -33.01 | 27.75 | 0.00 | |
| jtotass | 0.62 | 4.86 | 0.64 | 0.00 | 24.84 | | 30.97 |
| jtotliab | 0.00 | -4.17 | -3.89 | -25.81 | 2.91 | | -30.97 |
| jnfw | 0.62 | 0.69 | -3.25 | -25.81 | 27.75 | 0.00 | |

Source: own construction based on data of the Central Bank of Argentina.

| | SECTORS | | | | | | |
|---|---|---|---|---|---|---|---|
| Ene-81 ASSETS | CENTRAL BANK | FINANCIAL SECTOR | PRIVATE SECTOR | GOVERN. SECTOR | REST OF THE WORLD | ADDING | TOTAL ASSETS |
| 1.mon | -6.62 | -1.95 | 8.56 | | | 0.00 | 8.56 |
| 2.res | -1.19 | 1.19 | | | | 0.00 | 1.19 |
| 3.ccbg | 2.30 | | | -2.30 | | 0.00 | 2.30 |
| 4.dgbc | -0.08 | | | 0.08 | | 0.00 | 0.08 |
| 5.red | 4.48 | -4.48 | | | | 0.00 | 4.48 |
| 6.sad | | -7.94 | 2.35 | 5.59 | | 0.00 | 7.94 |
| 7.tip | | -21.73 | 21.73 | | | 0.00 | 21.73 |
| 8.cred | | 36.09 | -29.63 | -6.46 | | 0.00 | 36.09 |
| 9.bon | 1.75 | 1.01 | 2.60 | -5.36 | | 0.00 | 5.36 |
| 10.jnv | 0.03 | -3.71 | | | 3.69 | 0.00 | 0.03 |
| 11.jdep | | -0.78 | 0.56 | 0.23 | | 0.00 | 0.78 |
| 12.jcred | | 5.17 | -4.33 | -0.84 | | 0.00 | 5.17 |
| 13.jbon | | 0.57 | | -25.95 | 25.38 | 0.00 | 25.95 |
| totass | 8.55 | 44.02 | 35.80 | 5.89 | 25.38 | | 119.65 |
| totliab | -7.88 | -40.58 | -33.97 | -40.90 | 3.69 | | -119.65 |
| nfw | 0.67 | 3.44 | 1.83 | -35.00 | 29.07 | 0.00 | |
| jtotass | 0.03 | 5.73 | 0.56 | 0.23 | 25.38 | | 31.92 |
| jtotliab | 0.00 | -4.50 | -4.33 | -26.78 | 3.69 | | -31.92 |
| jnfw | 0.03 | 1.24 | -3.77 | -26.56 | 29.07 | 0.00 | |

Source: own construction based on data of the Central Bank of Argentina.

## CHAPTER IV: APPENDIX

### Matrix of Stocks of Assets and Liabilities of Argentina (% of GDP)

| | SECTORS | | | | | | |
|---|---|---|---|---|---|---|---|
| Feb-81 ASSETS | CENTRAL BANK | FINANCIAL SECTOR | PRIVATE SECTOR | GOVERN. SECTOR | REST OF THE WORLD | ADDING | TOTAL ASSETS |
| 1.mon | -6.38 | -1.32 | 7.70 | | | 0.00 | 7.70 |
| 2.res | -1.88 | 1.88 | | | | 0.00 | 1.88 |
| 3.ccbg | 2.47 | | | -2.47 | | 0.00 | 2.47 |
| 4.dgbc | -0.08 | | | 0.08 | | 0.00 | 0.08 |
| 5.red | 4.94 | -4.94 | | | | 0.00 | 4.94 |
| 6.sad | | -8.03 | 2.14 | 5.88 | | 0.00 | 8.03 |
| 7.tip | | -21.70 | 21.70 | | | 0.00 | 21.70 |
| 8.cred | | 34.83 | -29.32 | -5.51 | | 0.00 | 34.83 |
| 9.bon | 2.63 | 1.22 | 1.43 | -5.29 | | 0.00 | 5.29 |
| 10.jnv | -0.96 | -3.82 | | | 4.77 | 0.00 | -0.96 |
| 11.jdep | | -0.87 | 0.70 | 0.16 | | 0.00 | 0.87 |
| 12.jcred | | 5.49 | -4.57 | -0.93 | | 0.00 | 5.49 |
| 13.jbon | | 0.42 | | -26.54 | 26.12 | 0.00 | 26.54 |
| totass | 9.08 | 43.84 | 33.69 | 6.12 | 26.12 | | 118.85 |
| totliab | -8.33 | -40.68 | -33.88 | -40.73 | 4.77 | | -118.85 |
| nfw | 0.75 | 3.17 | -0.20 | -34.61 | 30.89 | 0.00 | |
| jtotass | -0.96 | 5.92 | 0.70 | 0.16 | 26.12 | | 31.94 |
| jtotliab | 0.00 | -4.68 | -4.57 | -27.47 | 4.77 | | -31.94 |
| jnfw | -0.96 | 1.23 | -3.86 | -27.30 | 30.89 | 0.00 | |

Source: own construction based on data of the Central Bank of Argentina.

| | SECTORS | | | | | | |
|---|---|---|---|---|---|---|---|
| Mar-81 ASSETS | CENTRAL BANK | FINANCIAL SECTOR | PRIVATE SECTOR | GOVERN. SECTOR | REST OF THE WORLD | ADDING | TOTAL ASSETS |
| 1.mon | -5.59 | -1.15 | 6.73 | | | 0.00 | 6.73 |
| 2.res | -1.17 | 1.17 | | | | 0.00 | 1.17 |
| 3.ccbg | 1.64 | | | -1.64 | | 0.00 | 1.64 |
| 4.dgbc | -0.01 | | | 0.01 | | 0.00 | 0.01 |
| 5.red | 4.89 | -4.89 | | | | 0.00 | 4.89 |
| 6.sad | | -7.63 | 2.04 | 5.59 | | 0.00 | 7.63 |
| 7.tip | | -21.36 | 21.36 | | | 0.00 | 21.36 |
| 8.cred | | 34.32 | -28.65 | -5.67 | | 0.00 | 34.32 |
| 9.bon | 3.80 | 0.53 | 1.50 | -5.84 | | 0.00 | 5.84 |
| 10.jnv | -1.61 | -3.56 | | | 5.17 | 0.00 | -1.61 |
| 11.jdep | | -0.79 | 0.70 | 0.10 | | 0.00 | 0.79 |
| 12.jcred | | 5.28 | -4.31 | -0.97 | | 0.00 | 5.28 |
| 13.jbon | | 1.17 | | -27.15 | 25.98 | 0.00 | 27.15 |
| totass | 8.72 | 42.47 | 32.33 | 5.70 | 25.98 | | 115.20 |
| totliab | -6.77 | -39.38 | -32.96 | -41.26 | 5.17 | | -115.20 |
| nfw | 1.95 | 3.09 | -0.63 | -35.56 | 31.15 | 0.00 | |
| jtotass | -1.61 | 6.45 | 0.70 | 0.10 | 25.98 | | 31.61 |
| Jtotliab | 0.00 | -4.36 | -4.31 | -28.12 | 5.17 | | -31.61 |
| Jnfw | -1.61 | 2.09 | -3.61 | -28.02 | 31.15 | 0.00 | |

Source: own construction based on data of the Central Bank of Argentina.

## CHAPTER IV: APPENDIX

### Matrix of Stocks of Assets and Liabilities of Argentina ( of pesos of 1995)

| | SECTORS | | | | | | |
|---|---|---|---|---|---|---|---|
| Abr-76 ASSETS | CENTRAL BANK | FINANCIAL SECTOR | PRIVATE SECTOR | GOVERN. SECTOR | REST OF THE WORLD | ADDING | TOTAL ASSETS |
| 1.mon | -5,522 | -4,121 | 9,643 | | | 0.00 | 9,643 |
| 2.res | -17,448 | 17,448 | | | | 0.00 | 17,448 |
| 3.ccbg | 323 | | | -323 | | 0.00 | 323 |
| 4.dgbc | -137 | | | 137 | | 0.00 | 137 |
| 5.red | 15,059 | -15,059 | | | | 0.00 | 15,059 |
| 6.sad | | -5,889 | 2,084 | 3,805 | | 0.00 | 5,889 |
| 7.tip | | -2,236 | 2,236 | | | 0.00 | 2,236 |
| 8.cred | | 12,702 | -9,349 | -3,354 | | 0.00 | 12,702 |
| 9.bon | 6,219 | 200 | 1,250 | -7,669 | | 0.00 | 7,669 |
| 10.jnv | 1,838 | -642 | | | -1,196 | 0.00 | 1,838 |
| 11.jdep | | 0 | 0 | 0 | | 0.00 | 0 |
| 12.jcred | | 1,253 | -1,253 | 0 | | 0.00 | 1,253 |
| 13.jbon | | 18 | | -8,388 | 8,370 | 0.00 | 8,388 |
| totass | 23,439 | 31,621 | 15,212 | 3,942 | 8,370 | | 82,584 |
| totliab | -23,107 | -27,947 | -10,602 | -19,734 | -1,196 | | -82,584 |
| Nfw | 332 | 3,675 | 4,611 | -15,792 | 7,174 | 0.00 | |
| jtotass | 1,838 | 1,271 | 0 | 0 | 8,370 | | 11,479 |
| jtotliab | 0 | -642 | -1,253 | -8,388 | -1,196 | | -11,479 |
| Jnfw | 1,838 | 629 | -1,253 | -8,388 | 7,174 | 0.00 | |

Source: own construction based on data of the Central Bank of Argentina.

| | SECTORS | | | | | | |
|---|---|---|---|---|---|---|---|
| May-77 ASSETS | CENTRAL BANK | FINANCIAL SECTOR | PRIVATE SECTOR | GOVERN. SECTOR | REST OF THE WORLD | ADDING | TOTAL ASSETS |
| 1.mon | -8,528 | -4,603 | 13,131 | | | 0.00 | 13,131 |
| 2.res | -34,779 | 34,779 | | | | 0.00 | 34,779 |
| 3.ccbg | 1,485 | | | -1,485 | | 0.00 | 1,485 |
| 4.dgbc | -277 | | | 277 | | 0.00 | 277 |
| 5.red | 27,996 | -27,996 | | | | 0.00 | 27,996 |
| 6.sad | | -3,899 | 3,899 | | | 0.00 | 3,899 |
| 7.tip | | -11,912 | 11,912 | | | 0.00 | 11,912 |
| 8.cred | | 25,673 | -21,525 | -4,148 | | 0.00 | 25,673 |
| 9.bon | 5,253 | 1,160 | 2,479 | -8,892 | | 0.00 | 8,892 |
| 10.jnv | 8,261 | -1,349 | | | -6,912 | 0.00 | 8,261 |
| 11.jdep | | 0 | 0 | 0 | | 0.00 | 0 |
| 12.jcred | | 2,255 | -2,255 | 0 | | 0.00 | 2,255 |
| 13.jbon | | 14 | | -10,488 | 10,474 | 0.00 | 10,488 |
| totass | 42,995 | 63,883 | 31,420 | 277 | 10,474 | | 149,049 |
| totliab | -43,584 | -49,759 | -23,780 | -25,014 | -6,912 | | -149,049 |
| Nfw | -589 | 14,124 | 7,640 | -24,737 | 3,562 | 0.00 | |
| jtotass | 8,261 | 2,270 | 0 | 0 | 10,474 | | 21,005 |
| jtotliab | 0 | -1,349 | -2,255 | -10,488 | -6,912 | | -21,005 |
| Jnfw | 8,261 | 920 | -2,255 | -10,488 | 3,562 | 0.00 | |

Source: own construction based on data of the Central Bank of Argentina.

## CHAPTER IV: APPENDIX

### Matrix of Stocks of Assets and Liabilities of Argentina (millions of pesos of 1995)

| | SECTORS | | | | | | |
|---|---|---|---|---|---|---|---|
| Jul-77 ASSETS | CENTRAL BANK | FINANCIAL SECTOR | PRIVATE SECTOR | GOVERN. SECTOR | REST OF THE WORLD | ADDING | TOTAL ASSETS |
| 1.mon | -8,938 | -3,853 | 12,791 | | | 0.00 | 12,791 |
| 2.res | -110 | 110 | | | | 0.00 | 110 |
| 3.ccbg | 2,461 | | | -2,461 | | 0.00 | 2,461 |
| 4.dgbc | -935 | | | 935 | | 0.00 | 935 |
| 5.red | 1,292 | -1,292 | | | | 0.00 | 1,292 |
| 6.sad | | -10,462 | 3,494 | 6,967 | | 0.00 | 10,462 |
| 7.tip | | -15,649 | 15,649 | | | 0.00 | 15,649 |
| 8.cred | | 29,863 | -25,044 | -4,819 | | 0.00 | 29,863 |
| 9.bon | 6,035 | 1,361 | 2,020 | -9,416 | | 0.00 | 9,416 |
| 10.jnv | 8,925 | -1,910 | | | -7,015 | 0.00 | 8,925 |
| 11.jdep | | 0 | 0 | 0 | | 0.00 | 0 |
| 12.jcred | | 2,398 | -2,398 | 0 | | 0.00 | 2,398 |
| 13.jbon | | 12 | | -10,821 | 10,809 | 0.00 | 10,821 |
| Totass | 18,713 | 33,744 | 33,953 | 7,903 | 10,809 | | 105,122 |
| Totliab | -9,984 | -33,165 | -27,442 | -27,516 | -7,015 | | -105,122 |
| Nfw | 8,729 | 579 | 6,512 | -19,613 | 3,794 | 0.00 | |
| Jtotass | 8,925 | 2,410 | 0 | 0 | 10,809 | | 22,144 |
| Jtotliab | 0 | -1,910 | -2,398 | -10,821 | -7,015 | | -22,144 |
| Jnfw | 8,925 | 500 | -2,398 | -10,821 | 3,794 | 0.00 | |

Source: own construction based on data of the Central Bank of Argentina.

| | SECTORS | | | | | | |
|---|---|---|---|---|---|---|---|
| Dic-78 ASSETS | CENTRAL BANK | FINANCIAL SECTOR | PRIVATE SECTOR | GOVERN. SECTOR | REST OF THE WORLD | ADDING | TOTAL ASSETS |
| 1.mon | -9,425 | -2,743 | 12,168 | | | 0.00 | 12,168 |
| 2.res | -6,233 | 6,233 | | | | 0.00 | 6,233 |
| 3.ccbg | 3,778 | | | -3,778 | | 0.00 | 3,778 |
| 4.dgbc | -95 | | | 95 | | 0.00 | 95 |
| 5.red | 1,376 | -1,376 | | | | 0.00 | 1,376 |
| 6.sad | | -9,057 | 2,832 | 6,225 | | 0.00 | 9,057 |
| 7.tip | | -22,858 | 22,858 | | | 0.00 | 22,858 |
| 8.cred | | 34,076 | -26,704 | -7,372 | | 0.00 | 34,076 |
| 9.bon | 2,232 | 1,972 | 3,754 | -7,958 | | 0.00 | 7,958 |
| 10.jnv | 9,166 | -3,420 | | | -5,746 | 0.00 | 3,420 |
| 11.jdep | | -209 | 209 | 0 | | 0.00 | 209 |
| 12.jcred | | 2,991 | -2,991 | 0 | | 0.00 | 2,991 |
| 13.jbon | | 898 | | -13,600 | 12,702 | 0.00 | 13,600 |
| totass | 16,552 | 46,171 | 41,822 | 6,319 | 6,956 | | 117,820 |
| totliab | -15,753 | -39,663 | -29,696 | -32,708 | 0 | | -117,820 |
| nfw | 799 | 6,507 | 12,127 | -26,389 | 6,956 | 0.00 | |
| jtotass | 9,166 | 3,889 | 209 | 0 | 6,956 | | 20,220 |
| jtotliab | 0 | -3,629 | -2,991 | -13,600 | 0 | | -20,220 |
| jnfw | 9,166 | 260 | -2,782 | -13,600 | 6,956 | 0.00 | |

Source: own construction based on data of the Central Bank of Argentina.

## CHAPTER IV: APPENDIX

### Matrix of Stocks of Assets and Liabilities of Argentina (millions of pesos of 1995)

| | SECTORS | | | | | | |
|---|---|---|---|---|---|---|---|
| Mar-80 ASSETS | CENTRAL BANK | FINANCIAL SECTOR | PRIVATE SECTOR | GOVERN. SECTOR | REST OF THE WORLD | ADDING | TOTAL ASSETS |
| 1.mon | -8,651 | -3,731 | 12,381 | | | 0.00 | 12,381 |
| 2.res | -2,016 | 2,016 | | | | 0.00 | 2,016 |
| 3.ccbg | 2,367 | | | -2,367 | | 0.00 | 2,367 |
| 4.dgbc | -55 | | | 55 | | 0.00 | 55 |
| 5.red | 682 | -682 | | | | 0.00 | 682 |
| 6.sad | | -9,229 | 2,658 | 6,571 | | 0.00 | 9,229 |
| 7.tip | | -32,827 | 32,827 | | | 0.00 | 32,827 |
| 8.cred | | 52,854 | -43,092 | -9,762 | | 0.00 | 52,854 |
| 9.bon | 814 | 2,796 | 3,797 | -7,407 | | 0.00 | 7,407 |
| 10.jnv | 7,304 | -6,129 | | | -1,176 | 0.00 | 6,129 |
| 11.jdep | | -449 | 449 | 0 | | 0.00 | 449 |
| 12.jcred | | 6,241 | -6,241 | 0 | | 0.00 | 6,241 |
| 13.jbon | | 804 | | -20,783 | 19,979 | 0.00 | 20,783 |
| totass | 11,167 | 64,710 | 52,113 | 6,626 | 18,803 | | 153,420 |
| totliab | -10,722 | -53,046 | -49,333 | -40,319 | 0 | | -153,420 |
| nfw | 445 | 11,664 | 2,780 | -33,693 | 18,803 | 0.00 | |
| jtotass | 7,304 | 7,045 | 449 | 0 | 18,803 | | 33,602 |
| jtotliab | 0 | -6,578 | -6,241 | -20,783 | 0 | | -33,602 |
| jnfw | 7,304 | 467 | -5,792 | -20,783 | 18,803 | 0.00 | |

Source: own construction based on data of the Central Bank of Argentina.

| | SECTORS | | | | | | |
|---|---|---|---|---|---|---|---|
| Mar-81 ASSETS | CENTRAL BANK | FINANCIAL SECTOR | PRIVATE SECTOR | GOVERN. SECTOR | REST OF THE WORLD | ADDING | TOTAL ASSETS |
| 1.mon | -8,318 | -1,706 | 10,024 | | | 0.00 | 10,024 |
| 2.res | -1,739 | 1,739 | | | | 0.00 | 1,739 |
| 3.ccbg | 2,436 | | | -2,436 | | 0.00 | 2,436 |
| 4.dgbc | -16 | | | 16 | | 0.00 | 16 |
| 5.red | 7,276 | -7,276 | | | | 0.00 | 7,276 |
| 6.sad | | -11,351 | 3,032 | 8,320 | | 0.00 | 11,351 |
| 7.tip | | -31,793 | 31,793 | | | 0.00 | 31,793 |
| 8.cred | | 51,081 | -42,647 | -8,434 | | 0.00 | 51,081 |
| 9.bon | 5,661 | 796 | 2,233 | -8,690 | | 0.00 | 8,690 |
| 10.jnv | -2,392 | -5,301 | | | 7,693 | 0.00 | 5,301 |
| 11.jdep | | -1,183 | 1,035 | 148 | | 0.00 | 1,183 |
| 12.jcred | | 7,857 | -6,415 | -1,442 | | 0.00 | 7,857 |
| 13.jbon | | 1,742 | | -29,113 | 27,372 | 0.00 | 29,113 |
| totass | 12,980 | 63,214 | 48,117 | 8,484 | 35,065 | | 167,859 |
| totliab | -10,073 | -58,609 | -49,062 | -50,115 | 0 | | -167,859 |
| nfw | 2,906 | 4,605 | -945 | -41,631 | 35,065 | 0.00 | |
| jtotass | -2,392 | 9,599 | 1,035 | 148 | 35,065 | | 43,455 |
| jtotliab | 0 | -6,484 | -6,415 | -30,556 | 0 | | -43,455 |
| jnfw | -2,392 | 3,115 | -5,379 | -30,408 | 35,065 | 0.00 | |

Source: own construction based on data of the Central Bank of Argentina

## CHAPTER IV: APPENDIX

### Matrix of Flows of Assets and Liabilities of Argentina (millions of pesos of 1995)

| | SECTORS | | | | | |
|---|---|---|---|---|---|---|
| Apr.76 - Mar.81 | CENTRAL BANK | FINANCIAL SECTOR | PRIVATE SECTOR | GOVERN. SECTOR | REST OF THE WORLD | TOTAL ASSETS |
| 1.mon | 2,796 | -2,415 | 381 | | | 381 |
| 2.res | -15,709 | -15,709 | | | | -15,709 |
| 3.ccbg | 2,112 | | | 2,112 | | 2,112 |
| 4.dgbc | -120 | | | -120 | | -120 |
| 5.red | -7,783 | -7,783 | | | | -7,783 |
| 6.sad | | 5,462 | 948 | 4,514 | | 5,462 |
| 7.tip | | 29,557 | 29,557 | | | 29,557 |
| 8.cred | | 38,379 | 33,299 | 5,080 | | 38,379 |
| 9.bon | -558 | 595 | 983 | 1,021 | | 1,021 |
| 10.jnv | -4,230 | -4,659 | | | -8,889 | -8,889 |
| 11.jdep | | 1,183 | 1,035 | 148 | | 1,183 |
| 12.jcred | | 6,604 | 5,162 | 1,442 | | 6,604 |
| 13.jbon | | 1,724 | | 20,726 | 19,002 | 20,726 |
| Totass | -10,459 | 26,934 | 32,905 | 4,541 | 19,002 | 72,923 |
| Totliab | -13,033 | 26,004 | 38,460 | 30,381 | -8,889 | 72,923 |
| Nfw | 2,574 | 930 | -5,556 | -25,839 | 27,891 | 0.00 |
| Jtotass | -4,230 | 3,669 | 1,035 | 148 | 19,002 | 19,624 |
| Jtotliab | 0 | 1,183 | 5,162 | 22,168 | -8,889 | 19,624 |
| Jnfw | -4,230 | 2,486 | -4,127 | -22,020 | 27,891 | 0.00 |

Source: own construction based on data of the Central Bank of Argentina.

| | SECTORS | | | | | |
|---|---|---|---|---|---|---|
| Apr.76 - May.77 | CENTRAL BANK | FINANCIAL SECTOR | PRIVATE SECTOR | GOVERN. SECTOR | REST OF THE WORLD | TOTAL ASSETS |
| 1.mon | 3,006 | 482 | 3,488 | | | 3,488 |
| 2.res | 17,332 | 17,332 | | | | 17,332 |
| 3.ccbg | 1,162 | | | 1,162 | | 1,162 |
| 4.dgbc | 140 | | | 140 | | 140 |
| 5.red | 12,937 | 12,937 | | | | 12,937 |
| 6.sad | | -1,991 | 1,815 | -3,805 | | -1,991 |
| 7.tip | | 9,676 | 9,676 | 1,956 | | 9,676 |
| 8.cred | | 12,971 | 12,176 | 795 | | 12,971 |
| 9.bon | -966 | 960 | 1,230 | 1,223 | | 1,223 |
| 10.jnv | 6,424 | -707 | | 5,716 | 5,716 | 5,716 |
| 11.jdep | | 0 | 0 | 0 | | 0 |
| 12.jcred | | 1,002 | 1,002 | 0 | | 1,002 |
| 13.jbon | | -4 | | 2,100 | 2,104 | 2,100 |
| Totass | 19,557 | 31,554 | 16,208 | -3,665 | 2,104 | 65,758 |
| Totliab | 20,477 | 21,105 | 13,179 | 5,280 | 5,716 | 65,758 |
| Nfw | -921 | 10,449 | 3,030 | -8,945 | -3,613 | 0.00 |
| Jtotass | 6,424 | 292 | 0 | 0 | 2,104 | 8,819 |
| Jtotliab | 0 | 0 | 1,002 | 2,100 | 5,716 | 8,819 |
| Jnfw | 6,424 | 292 | -1,002 | -2,100 | -3,613 | 0.00 |

Source: own construction based on data of the Central Bank of Argentina.

## CHAPTER IV: APPENDIX

### Matrix of Flows of Assets and Liabilities of Argentina (millions of pesos of 1995)

| | SECTORS | | | | | |
|---|---|---|---|---|---|---|
| May.77- Jul.77 | CENTRAL BANK | FINANCIAL SECTOR | PRIVATE SECTOR | GOVERN. SECTOR | REST OF THE WORLD | TOTAL ASSETS |
| 1.mon | 411 | -750 | -340 | | | -340 |
| 2.res | -34,669 | -34,669 | | | | -34,669 |
| 3.ccbg | 976 | | | 976 | | 976 |
| 4.dgbc | 659 | | | 659 | | 659 |
| 5.red | -26,704 | -26,704 | | | | -26,704 |
| 6.sad | | 6,563 | -404 | 6,967 | | 6,563 |
| 7.tip | | 3,737 | 3,737 | | | 3,737 |
| 8.cred | | 4,189 | 3,519 | 670 | | 4,189 |
| 9.bon | 783 | 201 | -460 | 524 | | 524 |
| 10.jnv | 664 | -561 | | | 103 | 103 |
| 11.jdep | | 0 | 0 | 0 | | 0 |
| 12.jcred | | 142 | 142 | 0 | | 142 |
| 13.jbon | | -2 | | 333 | 335 | 333 |
| totass | -24,282 | -30,699 | 2,533 | 7,626 | 335 | -44,488 |
| totliab | -33,600 | -17,155 | 3,661 | 2,502 | 103 | -44,488 |
| nfw | 9,318 | -13,545 | -1,129 | 5,124 | 232 | 0.00 |
| jtotass | 664 | -420 | 0 | 0 | 335 | 578 |
| jtotliab | 0 | 0 | 142 | 333 | 103 | 578 |
| jnfw | 664 | -420 | -142 | -333 | 232 | 0.00 |

Source: own construction based on data of the Central Bank of Argentina.

| | | | SECTORS | | | |
|---|---|---|---|---|---|---|
| Jul.77 - Dec.78 | CENTRAL BANK | FINANCIAL SECTOR | PRIVATE SECTOR | GOVERN. SECTOR | REST OF THE WORLD | TOTAL ASSETS |
| 1.mon | 487 | -1,110 | -623 | | | -623 |
| 2.res | 6,123 | 6,123 | | | | 6,123 |
| 3.ccbg | 1,318 | | | 1,318 | | 1,318 |
| 4.dgbc | -841 | | | -841 | | -841 |
| 5.red | 84 | 84 | | | | 84 |
| 6.sad | | -1,405 | -662 | -743 | | -1,405 |
| 7.tip | | 7,210 | 7,210 | | | 7,210 |
| 8.cred | | 4,213 | 1,660 | 2,553 | | 4,213 |
| 9.bon | -3,803 | 610 | 1,734 | -1,458 | | -1,458 |
| 10.jnv | 241 | -1,510 | | | -1,269 | -1,269 |
| 11.jdep | | 209 | 209 | 0 | | 209 |
| 12.jcred | | 594 | 594 | 0 | | 594 |
| 13.jbon | | 886 | | 2,779 | 1,893 | 2,779 |
| totass | -2,161 | 10,917 | 7,869 | -1,584 | 1,893 | 16,935 |
| totliab | 5,769 | 4,988 | 2,254 | 5,192 | -1,269 | 16,935 |
| nfw | -7,930 | 5,928 | 5,615 | -6,776 | 3,162 | 0.00 |
| jtotass | 241 | -30 | 209 | 0 | 1,893 | 2,313 |
| jtotliab | 0 | 209 | 594 | 2,779 | -1,269 | 2,313 |
| jnfw | 241 | -239 | -384 | -2,779 | 3,162 | 0.00 |

Source: own construction based on data of the Central Bank of Argentina.

## CHAPTER IV: APPENDIX

### Matrix of Flows of Assets and Liabilities of Argentina (millions of pesos of 1995)

| | SECTORS | | | | | |
|---|---|---|---|---|---|---|
| Dec.78- Mar.81 | CENTRAL BANK | FINANCIAL SECTOR | PRIVATE SECTOR | GOVERN. SECTOR | REST OF THE WORLD | TOTAL ASSETS |
| 1.mon | -1,107 | -1,037 | -2,144 | | | -2,144 |
| 2.res | -4,495 | -4,495 | | | | -4,495 |
| 3.ccbg | -1,343 | | | -1,343 | | -1,343 |
| 4.dgbc | -78 | | | -78 | | -78 |
| 5.red | 5,900 | 5,900 | | | | 5,900 |
| 6.sad | | 2,294 | 199 | 2,095 | | 2,294 |
| 7.tip | | 8,934 | 8,934 | | | 8,934 |
| 8.cred | | 17,005 | 15,943 | 1,062 | | 17,005 |
| 9.bon | 3,428 | -1,176 | -1,521 | 732 | | 732 |
| 10.jnv | -11,558 | -1,881 | | | -13,440 | -13,440 |
| 11.jdep | | 974 | 826 | 148 | | 974 |
| 12.jcred | | 4,866 | 3,424 | 1,442 | | 4,866 |
| 13.jbon | | 844 | | 15,513 | 14,670 | 15,513 |
| totass | -3,573 | 15,162 | 6,295 | 2,164 | 14,670 | 34,718 |
| totliab | -5,680 | 17,065 | 19,366 | 17,406 | -13,440 | 34,718 |
| nfw | 2,107 | -1,903 | -13,072 | -15,242 | 28,109 | 0.00 |
| jtotass | -11,558 | 3,828 | 826 | 148 | 14,670 | 7,913 |
| jtotliab | 0 | 974 | 3,424 | 16,956 | -13,440 | 7,913 |
| jnfw | -11,558 | 2,854 | -2,597 | -16,808 | 28,109 | 0.00 |

Source: own construction based on data of the Central Bank of Argentina.

| | | | SECTORS | | | |
|---|---|---|---|---|---|---|
| Jul.77 - Mar. 80 | CENTRAL BANK | FINANCIAL SECTOR | PRIVATE SECTOR | GOVERN. SECTOR | REST OF THE WORLD | TOTAL ASSETS |
| 1.mon | -288 | -122 | -410 | | | -410 |
| 2.res | 1,905 | 1,905 | | | | 1,905 |
| 3.ccbg | -93 | | | -93 | | -93 |
| 4.dgbc | -880 | | | -880 | | -880 |
| 5.red | -610 | -610 | | | | -610 |
| 6.sad | | -1,233 | -836 | -397 | | -1,233 |
| 7.tip | | 17,179 | 17,179 | | | 17,179 |
| 8.cred | | 22,991 | 18,048 | 4,943 | | 22,991 |
| 9.bon | -5,222 | 1,434 | 1,778 | -2,009 | | -2,009 |
| 10.jnv | -1,621 | -4,219 | | | -5,839 | -5,839 |
| 11.jdep | | 449 | 449 | 0 | | 449 |
| 12.jcred | | 3,843 | 3,843 | 0 | | 3,843 |
| 13.jbon | | 792 | | 9,962 | 9,170 | 9,962 |
| totass | -7,546 | 26,747 | 18,160 | -1,277 | 9,170 | 45,255 |
| totliab | 738 | 15,663 | 21,891 | 12,802 | -5,839 | 45,255 |
| nfw | -8,284 | 11,085 | -3,732 | -14,079 | 15,010 | 0.00 |
| jtotass | -1,621 | 416 | 449 | 0 | 9,170 | 8,415 |
| jtotliab | 0 | 449 | 3,843 | 9,962 | -5,839 | 8,415 |
| jnfw | -1,621 | -33 | -3,394 | -9,962 | 15,010 | 0.00 |

Source: own construction based on data of the Central Bank of Argentina.

## CHAPTER IV: APPENDIX

### Matrix of Flows of Assets and Liabilities of Argentina (millions of pesos of 1995)

| | SECTORS | | | | | |
|---|---|---|---|---|---|---|
| Mar. 80 - Jul. 80 | CENTRAL BANK | FINANCIAL SECTOR | PRIVATE SECTOR | GOVERN. SECTOR | REST OF THE WORLD | TOTAL ASSETS |
| 1.mon | 408 | -1,135 | -727 | | | -727 |
| 2.res | 2,199 | 2,199 | | | | 2,199 |
| 3.ccbg | 1,161 | | | 1,161 | | 1,161 |
| 4.dgbc | 26 | | | 26 | | 26 |
| 5.red | 4,843 | 4,843 | | | | 4,843 |
| 6.sad | | 1,211 | 272 | 938 | | 1,211 |
| 7.tip | | -497 | -497 | | | -497 |
| 8.cred | | -1,262 | -740 | -522 | | -1,262 |
| 9.bon | -151 | -480 | -93 | -725 | | -725 |
| 10.jnv | -2,298 | -313 | | | -2,610 | -2,610 |
| 11.jdep | | 116 | 116 | 0 | | 116 |
| 12.jcred | | 248 | 248 | 0 | | 248 |
| 13.jbon | | -73 | | -2,640 | 2,713 | -2,640 |
| totass | 3,556 | 319 | -929 | 964 | 2,713 | 1,342 |
| totliab | 2,632 | 4,537 | -492 | -2,726 | -2,610 | 1,342 |
| nfw | 923 | -4,218 | -438 | 3,690 | 5,323 | 5,280.44 |
| jtotass | -2,298 | -138 | 116 | 0 | 2,713 | 394 |
| jtotliab | 0 | 116 | 248 | -2,640 | -2,610 | -4,887 |
| jnfw | -2,298 | -254 | -132 | 2,640 | 5,323 | 5,280.44 |

Source: own construction based on data of the Central Bank of Argentina.

| | SECTORS | | | | | |
|---|---|---|---|---|---|---|
| Jul.77 - Mar. 81 | CENTRAL BANK | FINANCIAL SECTOR | PRIVATE SECTOR | GOVERN. SECTOR | REST OF THE WORLD | TOTAL ASSETS |
| 1.mon | -620 | -2,147 | -2,767 | | | -2,767 |
| 2.res | 1,628 | 1,628 | | | | 1,628 |
| 3.ccbg | -25 | | | -25 | | -25 |
| 4.dgbc | -919 | | | -919 | | -919 |
| 5.red | 5,984 | 5,984 | 18,293 | | | 5,984 |
| 6.sad | | 890 | -463 | 1,352 | | 890 |
| 7.tip | | 16,144 | 16,144 | | | 16,144 |
| 8.cred | | 21,218 | 17,603 | 3,615 | | 21,218 |
| 9.bon | -374 | -565 | 213 | -726 | | -726 |
| 10.jnv | -11,318 | -3,391 | | | -14,708 | -14,708 |
| 11.jdep | | 1,183 | 1,035 | 148 | | 1,183 |
| 12.jcred | | 5,459 | 4,017 | 1,442 | | 5,459 |
| 13.jbon | | 1,729 | | 18,293 | 16,563 | 18,293 |
| totass | -5,733 | 26,079 | 14,164 | 581 | 16,563 | 51,653 |
| totliab | 89 | 22,054 | 21,620 | 22,598 | -14,708 | 51,653 |
| nfw | -5,823 | 4,025 | -7,457 | -22,018 | 31,272 | 0.00 |
| jtotass | -11,318 | 3,798 | 1,035 | 148 | 16,563 | 10,226 |
| jtotliab | 0 | 1,183 | 4,017 | 19,735 | -14,708 | 10,226 |
| jnfw | -11,318 | 2,615 | -2,982 | -19,587 | 31,272 | 0.00 |

Source: own construction based on data of the Central Bank of Argentina.

## CHAPTER V: APPENDIX A

## Determinants of the Rate of Financial Spread, 1977-81

| Month | Spread | Gross Fcial. Yield | Minimum Reserve Cost | Free Reserves | Deposit Composition |
|---|---|---|---|---|---|
| Jun-77 | 1.2101 | - | 0.5781 | 0.2905 | - |
| Jul-77 | 0.4945 | 0.2846 | 0.3443 | 0.1412 | -0.2755 |
| Aug-77 | 0.7856 | 0.4553 | 0.4991 | 0.1281 | -0.2969 |
| Sep-77 | 1.0534 | 0.6112 | 0.7708 | 0.0655 | -0.3942 |
| Oct-77 | 2.6262 | 1.2311 | 1.8748 | 0.1822 | -0.6620 |
| Nov-77 | 2.9650 | 1.3853 | 1.9242 | 0.2320 | -0.5765 |
| Dec-77 | 2.6765 | 1.3077 | 1.7355 | 0.1805 | -0.5473 |
| Jan-78 | 2.7244 | 1.2129 | 1.6759 | 0.3100 | -0.4744 |
| Feb-78 | 2.5823 | 1.3339 | 1.3421 | 0.1654 | -0.2591 |
| Mar-78 | 2.0403 | 1.1925 | 0.8454 | 0.0910 | -0.0886 |
| Apr-78 | 1.4861 | 0.8461 | 0.6906 | 0.0908 | -0.1415 |
| May-78 | 1.1833 | 0.7612 | 0.4452 | 0.0589 | -0.0820 |
| Jun-78 | 1.5886 | 0.9193 | 0.7779 | 0.0719 | -0.1804 |
| Jul-78 | 1.0461 | 0.7661 | 0.2722 | 0.0282 | -0.0204 |
| Aug-78 | 0.9556 | 0.6368 | 0.2853 | 0.0658 | -0.0322 |
| Sep-78 | 1.0340 | 0.7454 | 0.2943 | 0.0137 | -0.0194 |
| Oct-78 | 0.8661 | 0.6476 | 0.2512 | 0.0378 | -0.0705 |
| Nov-78 | 0.7994 | 0.5495 | 0.3160 | 0.0585 | -0.1246 |
| Dec-78 | 0.8158 | 0.6320 | 0.2097 | 0.0474 | -0.0733 |
| Jan-79 | 0.7157 | 0.5323 | 0.0878 | 0.1164 | -0.0209 |
| Feb-79 | 0.6445 | 0.5130 | 0.2421 | 0.0534 | -0.1641 |
| Mar-79 | 0.6260 | 0.5311 | 0.1160 | 0.0342 | -0.0553 |
| Apr-79 | 0.5978 | 0.5101 | 0.1791 | 0.0211 | -0.1125 |
| May-79 | 0.5880 | 0.4819 | 0.0605 | 0.0660 | -0.0203 |
| Jun-79 | 0.5501 | 0.4625 | 0.1812 | 0.0345 | -0.1282 |
| Jul-79 | 0.5762 | 0.4860 | 0.1401 | 0.0467 | -0.0966 |
| Aug-79 | 0.5929 | 0.5383 | 0.0811 | 0.0221 | -0.0485 |
| Sep-79 | 0.6017 | 0.5271 | 0.1555 | 0.0223 | -0.1032 |
| Oct-79 | 0.6858 | 0.5974 | 0.0542 | 0.0439 | -0.0098 |
| Nov-79 | 0.7104 | 0.6209 | 0.0589 | 0.0320 | -0.0013 |
| Dec-79 | 0.8054 | 0.6947 | 0.0788 | 0.0476 | -0.0157 |
| Jan-80 | 0.8158 | 0.7064 | 0.0788 | 0.0518 | -0.0212 |
| Feb-80 | 0.7547 | 0.6966 | 0.0822 | 0.0374 | -0.0614 |
| Mar-80 | 0.6821 | 0.6553 | 0.0403 | 0.0348 | -0.0483 |
| Apr-80 | 0.6844 | 0.6857 | 0.0565 | 0.0119 | -0.0696 |
| May-80 | 0.7972 | 0.7845 | 0.0783 | 0.0199 | -0.0855 |
| Jun-80 | 0.9401 | 0.9203 | 0.1737 | 0.0545 | -0.2084 |
| Jul-80 | 0.8972 | 0.8973 | 0.1324 | 0.0196 | -0.1522 |
| Aug-80 | 0.8966 | 0.8164 | 0.0049 | 0.0416 | 0.0337 |
| Sep-80 | 1.0996 | 1.0242 | 0.0970 | 0.0265 | -0.0481 |
| Oct-80 | 0.8365 | 0.8254 | 0.0826 | 0.0208 | -0.0922 |
| Nov-80 | 0.7401 | 0.7656 | 0.0882 | 0.0215 | -0.1352 |
| Dec-80 | 0.8093 | 0.8079 | 0.1129 | 0.0673 | -0.1788 |
| Jan-81 | 0.9008 | 0.8787 | 0.0760 | 0.0684 | -0.1224 |
| Feb-81 | 1.5606 | 1.5354 | 0.2650 | 0.0551 | -0.2949 |
| Mar-81 | 2.6832 | 2.5436 | 0.3760 | 0.0159 | -0.2523 |

Source: based on data of the Central Bank of Argentina, Boletín Estadístico, BCRA several monthly issues, 1977-81.

## CHAPTER V: APPENDIX A

## Determinants of the Cost of Banking Reserves, 1977-81

| Month | Legal Reserve | Rate of | | Excess Margin | Excess | Demand Dep./ |
|---|---|---|---|---|---|---|
| | Requirement | Charge | Compensation | From the CRM | Reserves | Total Deposit |
| Jun-77 | 45.00 | 6.05 | 6.05 | 8.00 | 4.20 | 37.00 |
| Jul-77 | 45.00 | 6.35 | 6.35 | 8.00 | 2.11 | 37.00 |
| Aug-77 | 45.00 | 7.00 | 7.00 | 8.00 | 1.69 | 35.30 |
| Sep-77 | 45.00 | 7.30 | 7.30 | 8.00 | 0.78 | 33.00 |
| Oct-77 | 45.00 | 7.75 | 7.65 | 8.00 | 1.66 | 32.40 |
| Nov-77 | 45.00 | 9.00 | 8.80 | 8.00 | 1.93 | 31.20 |
| Dec-77 | 44.00 | 9.30 | 9.10 | 8.00 | 1.51 | 30.00 |
| Jan-78 | 44.00 | 9.30 | 9.10 | 8.00 | 2.62 | 28.90 |
| Feb-78 | 44.00 | 7.75 | 7.75 | 7.00 | 1.65 | 27.10 |
| Mar-78 | 44.00 | 7.20 | 7.20 | 7.00 | 1.07 | 25.90 |
| Apr-78 | 43.00 | 6.60 | 6.60 | 7.00 | 1.18 | 25.90 |
| May-78 | 43.00 | 7.05 | 7.05 | 7.00 | 0.78 | 26.60 |
| Jun-78 | 43.00 | 6.93 | 6.93 | 7.00 | 0.88 | 27.10 |
| Jul-78 | 42.00 | 7.32 | 7.32 | 7.00 | 0.38 | 26.70 |
| Aug-78 | 41.00 | 7.04 | 7.04 | 6.00 | 0.91 | 24.40 |
| Sep-78 | 39.00 | 6.54 | 6.54 | 6.00 | 0.20 | 22.50 |
| Oct-78 | 31.00 | 6.51 | 6.51 | 6.00 | 0.55 | 22.90 |
| Nov-78 | 33.00 | 6.55 | 6.55 | 6.00 | 0.83 | 23.80 |
| Dec-78 | 29.00 | 7.09 | 7.09 | 6.00 | 0.65 | 24.30 |
| Jan-79 | 27.00 | 7.24 | 7.24 | 7.00 | 1.65 | 25.90 |
| Feb-79 | 27.00 | 6.10 | 6.10 | 7.00 | 0.81 | 25.20 |
| Mar-79 | 27.00 | 6.57 | 6.57 | 7.00 | 0.52 | 23.70 |
| Apr-79 | 27.00 | 6.35 | 6.35 | 7.00 | 0.32 | 23.40 |
| May-79 | 27.00 | 6.90 | 6.90 | 7.00 | 0.99 | 23.40 |
| Jun-79 | 27.00 | 6.54 | 6.54 | 7.00 | 0.51 | 23.40 |
| Jul-79 | 26.00 | 7.03 | 7.03 | 7.00 | 0.66 | 23.00 |
| Aug-79 | 25.00 | 7.59 | 7.59 | 7.00 | 0.30 | 21.70 |
| Sep-79 | 24.00 | 7.33 | 7.33 | 7.00 | 0.30 | 19.80 |
| Oct-79 | 22.50 | 7.64 | 7.64 | 7.00 | 0.60 | 19.20 |
| Nov-79 | 21.00 | 6.68 | 6.68 | 7.00 | 0.49 | 18.60 |
| Dec-79 | 16.50 | 6.27 | 6.27 | 7.00 | 0.75 | 18.90 |
| Jan-80 | 15.00 | 6.09 | 6.09 | 7.00 | 0.83 | 19.40 |
| Feb-80 | 13.00 | 5.33 | 5.33 | 9.00 | 0.66 | 18.60 |
| Mar-80 | 11.50 | 5.19 | 5.19 | 12.00 | 0.66 | 18.70 |
| Apr-80 | 11.00 | 4.66 | 4.66 | 12.00 | 0.24 | 19.30 |
| May-80 | 11.00 | 4.62 | 4.62 | 12.00 | 0.39 | 19.40 |
| Jun-80 | 12.00 | 4.83 | 4.83 | 12.00 | 0.91 | 19.80 |
| Jul-80 | 13.00 | 5.91 | 5.91 | 12.00 | 0.30 | 19.40 |
| Aug-80 | 13.00 | 5.91 | 5.91 | 12.00 | 0.74 | 17.80 |
| Sep-80 | 11.50 | 4.60 | 4.60 | 12.00 | 0.51 | 18.00 |
| Oct-80 | 11.00 | 4.41 | 4.41 | 14.00 | 0.42 | 18.40 |
| Nov-80 | 10.00 | 4.46 | 4.46 | 14.00 | 0.42 | 18.40 |
| Dec-80 | 10.00 | 5.07 | 5.07 | 14.00 | 1.14 | 18.10 |
| Jan-81 | 10.00 | 5.76 | 5.76 | 16.00 | 1.11 | 16.90 |
| Feb-81 | 10.00 | 5.42 | 5.42 | 16.00 | 0.72 | 15.60 |
| Mar-81 | 12.00 | 7.58 | 7.58 | 20.00 | 0.16 | 13.90 |

Source: based on data of the Central Bank of Argentina, Boletín Estadístico, BCRA several monthly issues, 1977-81.

## CHAPTER V: APPENDIX B

### Estimations of the Supply and Demand Functions:

### Markets of Deposits and Credits, 1977-81

Dependent Variable: DIFHPLTOTDEP
Method: Least Squares
Sample: 1977:08 1981:12
Included observations: 53

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| IPC | 1.16080323026 | 0.243410591892 | 4.76891010059 | 1.70057086e-05 |
| NDRATEEST | 1.57225752114 | 0.421015511065 | 3.73444084557 | 0.00049075909 |
| DIFHPLPBI(-2) | 0.30108156060 | 0.136937915396 | 2.19867200208 | 0.03265314059 |
| C | -0.21380911507 | 0.032412611757 | -6.59647907032 | 2.7993869e-08 |

| | | | |
|---|---|---|---|
| R-squared | 0.65452948815 | Mean dependent var | 0.00755961303 |
| Adjusted R-squared | 0.63337823232 | S.D. dependent var | 0.05860377550 |
| S.E. of regression | 0.03548417558 | Akaike info criterion | -3.76698809962 |
| Sum squared resid | 0.06169720911 | Schwarz criterion | -3.61828682311 |
| Log likelihood | 103.825184639 | F-statistic | 30.9451832793 |
| Durbin-Watson stat | 0.95202002042 | Prob(F-statistic) | 2.2754042e-11 |

Dependent Variable: DIFHPLTOTDEP
Method: Least Squares
Sample: 1979:08 1981:12
Included observations: 29

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| IPC | 1.6416966845 | 0.43226704514 | 3.7978761114 | 0.00083104859 |
| NDRATEEST | 1.2945881447 | 0.55628955433 | 2.3271839901 | 0.02834922144 |
| DIFHPLPBI(-2) | 0.4874067912 | 0.21860012358 | 2.2296729847 | 0.03498642575 |
| C | -0.2182963622 | 0.04282790373 | -5.0970592345 | 2.8999264e-05 |

| | | | |
|---|---|---|---|
| R-squared | 0.7463279345 | Mean dependent var | -0.01299733061 |
| Adjusted R-squared | 0.7158872867 | S.D. dependent var | 0.06816885932 |
| S.E. of regression | 0.0363355184 | Akaike info criterion | -3.66460003107 |
| Sum squared resid | 0.0330067474 | Schwarz criterion | -3.47600750281 |
| Log likelihood | 57.136700455 | F-statistic | 24.5174786779 |
| Durbin-Watson stat | 0.9229423799 | Prob(F-statistic) | 1.2848318e-07 |

Dependent Variable: DIFHPLPTOTDEP
Method: Least Squares
Sample: 1977:08 1981:12
Included observations: 53

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| NDRATEEST | -2.82573994422 | 1.4428778842 | -1.95840547155 | 0.05577286071 |
| NLETRATE | 2.10080040409 | 1.7838318924 | 1.17768967665 | 0.24449562381 |
| NFORATE | 9.42531231068 | 3.6835166596 | 2.55878096442 | 0.01357807494 |

| | | | |
|---|---|---|---|
| R-squared | 0.15319836534 | Mean dependent var | 0.00639816545 |
| Adjusted R-squared | 0.11932629995 | S.D. dependent var | 0.09523950563 |
| S.E. of regression | 0.08937676800 | Akaike info criterion | -1.93697335343 |
| Sum squared resid | 0.39941033299 | Schwarz criterion | -1.82544739606 |
| Log likelihood | 54.3297938658 | F-statistic | 4.52285278726 |
| Durbin-Watson stat | 0.62989431655 | Prob(F-statistic) | 0.01565100364 |

## CHAPTER V: APPENDIX B

### Estimations of the Supply and Demand Functions:

### Markets of Deposits and Credits, 1977-81

Dependent Variable: DIFHPLPTOTDEP
Method: Least Squares
Sample: 1979:08 1981:12
Included observations: 29

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| NDRATEEST | -1.39722102795 | 1.62415785388 | -0.860274156615 | 0.39750150560 |
| NLETRATE | 1.10012241102 | 1.81145623165 | 0.607313823979 | 0.54891043973 |
| NFORATE | 4.73178921563 | 6.23777678509 | 0.758569820411 | 0.45493193062 |

| | | | |
|---|---|---|---|
| R-squared | 0.76643207384 | Mean dependent var | 0.01392335120 |
| Adjusted R-squared | 0.65823032047 | S.D. dependent var | 0.08041479252 |
| S.E. of regression | 0.08233117330 | Akaike info criterion | -2.05843667324 |
| Sum squared resid | 0.17623897455 | Schwarz criterion | -1.91699227703 |
| Log likelihood | 32.8473317619 | F-statistic | 0.35584339296 |
| Durbin-Watson stat | 0.49198312512 | Prob(F-statistic) | 0.70394130038 |

Dependent Variable: DIFHPLTOTLOAN
Method: Least Squares
Sample: 1977:08 1981:12
Included observations: 53

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| IPCOM | 1.0306470654 | 0.4608269010 | 2.2365167116 | 0.02980889682 |
| NLENDRATE | -0.7429279222 | 0.4002306413 | -1.8562494859 | 0.06931550680 |
| DIFHPLPBI(-1) | 1.5335169513 | 0.3154636639 | 4.8611524141 | 1.1984708e-05 |

| | | | |
|---|---|---|---|
| R-squared | 0.3854438124 | Mean dependent var | 0.00326048376 |
| Adjusted R-squared | 0.3608615649 | S.D. dependent var | 0.10803752806 |
| S.E. of regression | 0.0863718270 | Akaike info criterion | -2.00537182616 |
| Sum squared resid | 0.3730046250 | Schwarz criterion | -1.89384586879 |
| Log likelihood | 56.142353394 | F-statistic | 15.6797629051 |
| Durbin-Watson stat | 0.4429692439 | Prob(F-statistic) | 5.1765437e-06 |

Dependent Variable: DIFHPLTOTLOAN
Method: Least Squares
Sample: 1979:08 1981:12
Included observations: 29

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| IPCOM | 1.13403364626 | 0.803394001268 | 1.4115535397 | 0.169937390949 |
| NLENDRATE | -0.80925662662 | 0.630206877918 | -1.2841126540 | 0.210427859071 |
| DIFHPLPBI(-1) | 1.55935339332 | 0.463689228274 | 3.3629277934 | 0.002398563179 |

| | | | |
|---|---|---|---|
| R-squared | 0.28619581576 | Mean dependent var | -0.02990186982 |
| Adjusted R-squared | 0.23128780153 | S.D. dependent var | 0.11103886467 |
| S.E. of regression | 0.09735469467 | Akaike info criterion | -1.72321438759 |
| Sum squared resid | 0.24642635019 | Schwarz criterion | -1.58176999138 |
| Log likelihood | 27.9866086223 | F-statistic | 5.21227766092 |
| Durbin-Watson stat | 0.41412799295 | Prob(F-statistic) | 0.01248901429 |

## CHAPTER V: APPENDIX B

## Estimations of the Supply and Demand Functions: Markets of Deposits and Credits, 1977-81

*Total Deposit of the Aggregate Financial System*

Dependent Variable: DIFHPLTOTDEP
Method: Least Squares
Sample: 1977:08 1980:02
Included observations: 31

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| IPC | 1.21338242045 | 0.310854669341 | 3.90337524292 | 0.000571161560 |
| NDRATEEST | 1.71508933971 | 0.826396861204 | 2.07538220464 | 0.047603850246 |
| DIFHPLPBI(-2) | 0.32598244025 | 0.192976591075 | 1.68923307456 | 0.102692043629 |
| C | -0.23910879874 | 0.068763407698 | -3.47726802307 | 0.001731724029 |

| | | | |
|---|---|---|---|
| R-squared | 0.53895630827 | Mean dependent var | 0.013750039368 |
| Adjusted R-squared | 0.48772923142 | S.D. dependent var | 0.052776103196 |
| S.E. of regression | 0.03777348958 | Akaike info criterion | -3.594504334612 |
| Sum squared resid | 0.03852458591 | Schwarz criterion | -3.409473727572 |
| Log likelihood | 59.7148171863 | F-statistic | 10.52092645821 |
| Durbin-Watson stat | 1.04698818308 | Prob(F-statistic) | 9.28959183e-05 |

*Total Deposit of the Banco Internacional*

Dependent Variable: DIFHPLTOTDEPBINT
Method: Least Squares
Sample: 1977:08 1980:02
Included observations: 31

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| IPC | -1.12942645001 | 0.73251951532 | -1.54183803487 | 0.13475304745 |
| NDRATEEST | 2.80261584647 | 1.94737891349 | 1.43917335607 | 0.16159474473 |
| DIFHPLPBI(-2) | 1.87572382709 | 0.45474343127 | 4.12479586972 | 0.00031788421 |
| C | -0.14854749819 | 0.16203886589 | -0.91673992762 | 0.36739526521 |

| | | | |
|---|---|---|---|
| R-squared | 0.40555408386 | Mean dependent var | 0.00987331379 |
| Adjusted R-squared | 0.33950453763 | S.D. dependent var | 0.10952518425 |
| S.E. of regression | 0.08901207223 | Akaike info criterion | -1.88017537298 |
| Sum squared resid | 0.21392502316 | Schwarz criterion | -1.69514476595 |
| Log likelihood | 33.1427182811 | F-statistic | 6.14014943284 |
| Durbin-Watson stat | 1.11381038901 | Prob(F-statistic) | 0.00253788550 |

## CHAPTER V: APPENDIX B

## Estimations of the Supply and Demand Functions: Markets of Deposits and Credits, 1977-81

*Total Deposit of the Banco de Intercambio Regional*

Dependent Variable: DIFHPLTOTDEPBIR
Method: Least Squares
Sample: 1977:08 1980:02
Included observations: 31

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| IPC | -0.55359777994 | 0.99428882405 | -0.55677763498 | 0.58226552398 |
| NDRATEEST | 3.01857615171 | 2.64328396633 | 1.14197951872 | 0.26348928509 |
| DIFHPLPBI(-2) | 4.08249097314 | 0.61724814433 | 6.61401903042 | 4.2686691e-07 |
| C | -0.20342285027 | 0.21994421998 | -0.92488381958 | 0.36321935434 |

| | | | |
|---|---|---|---|
| R-squared | 0.61840158662 | Mean dependent var | 0.02502372676 |
| Adjusted R-squared | 0.57600176291 | S.D. dependent var | 0.18554969500 |
| S.E. of regression | 0.12082095668 | Akaike info criterion | -1.26909987441 |
| Sum squared resid | 0.39413799651 | Schwarz criterion | -1.08406926737 |
| Log likelihood | 23.6710480532 | F-statistic | 14.5850037225 |
| Durbin-Watson stat | 0.57337463996 | Prob(F-statistic) | 7.6858698e-06 |

*Total Deposit of the Banco de Los Andes*

Dependent Variable: DIFHPLTDEPBANDES
Method: Least Squares
Sample: 1977:08 1980:03
Included observations: 32

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| IPC | -1.18642090349 | 1.55210931027 | -0.76439262088 | 0.45102758171 |
| NDRATEEST | 3.22746632248 | 3.85012670576 | 0.83827535277 | 0.40897537674 |
| DIFHPLPBI(-2) | -6.52488973843 | 0.94627213266 | -6.89536288012 | 1.70653351e-07 |
| C | -0.20278572676 | 0.31333688647 | -0.64718115078 | 0.52278561060 |

| | | | |
|---|---|---|---|
| R-squared | 0.646632477057 | Mean dependent var | -0.01919004119 |
| Adjusted R-squared | 0.608771671027 | S.D. dependent var | 0.30160992212 |
| S.E. of regression | 0.188651722793 | Akaike info criterion | -0.38135979341 |
| Sum squared resid | 0.996505230359 | Schwarz criterion | -0.19814280556 |
| Log likelihood | 10.10175669461 | F-statistic | 17.0792052486 |
| Durbin-Watson stat | 0.710295707099 | Prob(F-statistic) | 1.6791787e-06 |

## CHAPTER VI: APPENDIX A

### Breakdown of the Return on Equity and on Assets

In general, the economic result of one company (gain/ loss) is made up of the difference between the revenues generated by its assets and the expenditures generated by its liabilities[1]. Formally,

(1) $B_t = (\sigma A_t - r L_t) - t (\sigma A_t - r L_t)$

(2) $B_t = (1- t) (\sigma A_t - r L_t)$

with: $B_t$ = corporate profit or loss
$A_t$ = total stock of assets
$L_t$ = total stock of liabilities
$\sigma$ = rate of return on assets
r = rate of financial cost on liabilities
t = rate of income tax

Dividing expression (1) by the stock of corporate equity ($NW_t$); and substituting the stock of assets for its equivalent: the sum of total liabilities and the firm's 'net worth' [$A_t = L_t + NW_t$]; the profit (loss) made by the firm can be re-written as:

(2) $\tau = (1- t) \{\sigma + (\sigma - r)\} (L/NW)$

with: $\tau$ = return on equity
$nw_t$ = stock of corporate net worth

And, by eliminating the tax effect, the expression is as follows:

(3) $\tau = \sigma + (\sigma - r) (L/NW)$

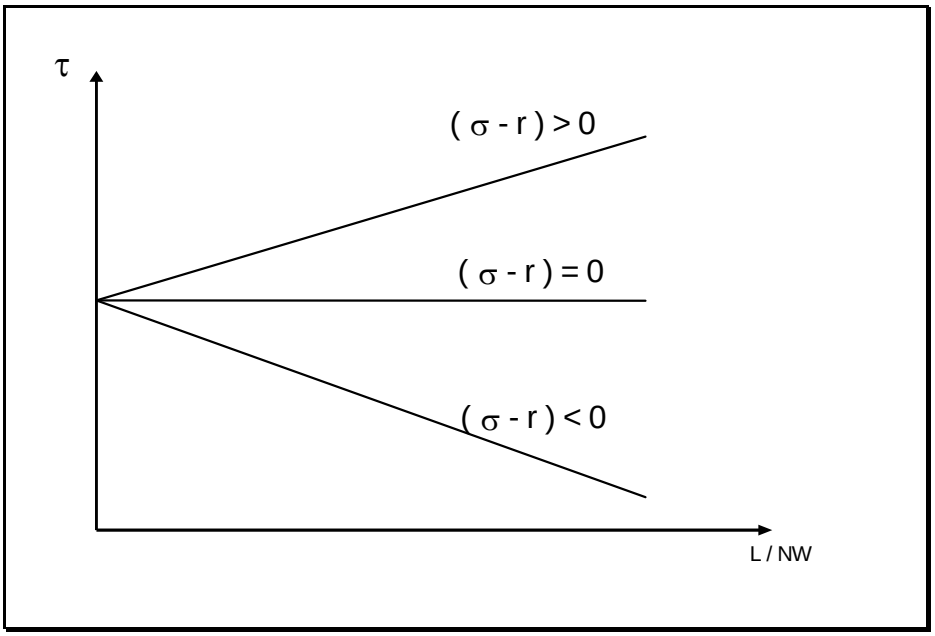
Equation (3) shows the 'return on equity' of the company ($\tau$) as a function of the following variables: (a) the ratio total debt to the stock of 'net worth' - corporate leverage (L/NW); (b) the profit (loss) of the firm as a proportion of the stock of assets ($\sigma$); and (c) the financial cost paid on the firm's liability (r). These three cases are analysed below.

[1] The connection and interaction between stock (e.g. corporate structure) and flow variables (e.g. business performance) is developed in detail in Chapter II, Section 3

a. Rate of Profit as a Function of the Level of Leverage

The 'return on equity' of the firm as a function of its level of leverage {$\tau = f$ (L/NW)}; for different values of ($\sigma$) and (r) is depicted in Graph VI.3.

Return on Equity and Corporate Leverage




Case ($\sigma$ > r) positive leverage: the 'return on assets' is higher than the financial cost paid on debts. Consequently, the company would increase its rate of profit ($\tau$) by raising its level of indebtedness and thus, the level of leverage (L/NW).

Case ($\sigma$ = r) neutral leverage: the 'return on assets' is equal to the interest rate. It means that the composition of the financial structure of the firm does not affect its rate of 'return on equity'.

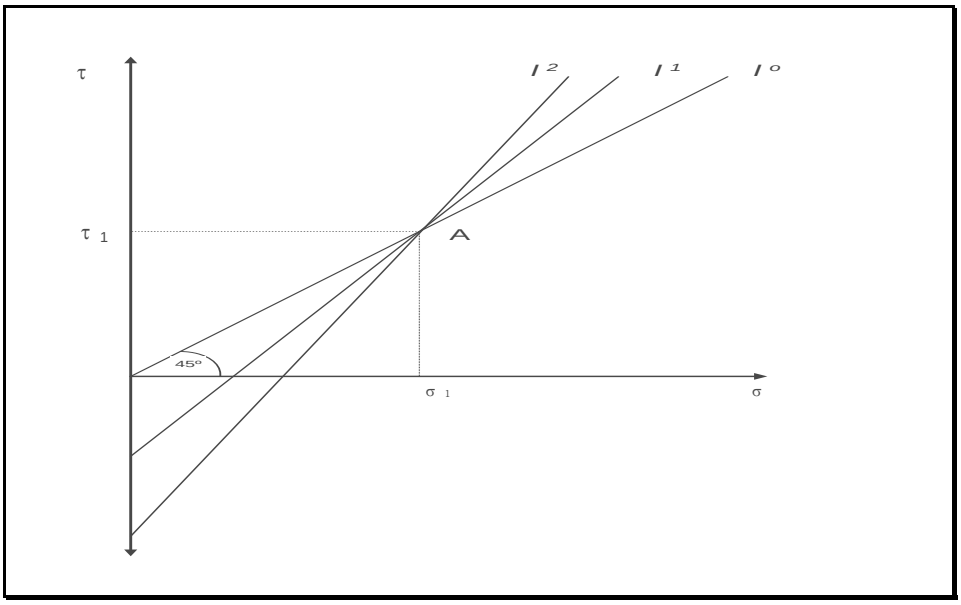
Case ($\sigma$ < r) negative leverage: the financial cost of debts is greater than the 'return on assets'. It means that the level of indebtedness negatively affects the economic result of the firm and consequently, a reduction in the 'debt-net worth' ratio would improve the 'return on equity'.

b. Rate of Profit as a Function of the Return on Asset

In order to facilitate the graphical representation of the function {$\tau = f(\sigma)$}, equation (3) can be re-expressed as follows:

(4) $\tau = (1 + l)\,\sigma - r\,l$ with: $l = (L/NW)$

Return on Equity and Return on Assets




In equation (4), when the leverage is zero (l = 0); the 'return on assets' equals the 'return on equity'. It is represented by the locus at 45° in the graph above. The line ($l^1$) depicts the relationship between ($\tau$) and ($\sigma$) when the level of indebtedness and the rate paid on debts are both positive. In the point (A), the 'return on equity' ($\tau$) equals the 'return on assets' ($\sigma$) and the financial cost paid per unit of debt (r)[2]. Above the point (A), an increase in the level of leverage causes an increase in the rate of profit. *Vice-versa* when points are below (A).

[2] Formally, this is a result derived from equation (4) when ($\tau = \sigma$)

The effect on the rate of profit ($\tau$) of a change in the return on assets ($\sigma$) is obtained by taking the total difference of equation (4) {$d\tau = (1 + l)\, d\sigma$}. This shows that an increase in the return on assets by one unit [$d\sigma$] causes an expansion of (1+ l) units in the 'return on equity' [$d\tau$]. It should be stressed that the factor (1+ l) = {1+ (L/NW)} indicates the multiplier effect caused by the return on assets on the return on corporate equity. Accordingly, the higher the level of leverage, the higher will be the sensitivity of the 'return on equity' to changes in the return on assets of the firm.

c. Rate of Profit as a Function of the Financial Cost

The rate of profit as a function of the financial cost paid on debts {$\tau = f(r)$} is obtained from equation (4). Whenever the interest rate is positive in real terms, any change in this rate will have an inverse effect on the 'return on equity'. On the contrary, with a negative real rate of interest, the company receives a subsidy equivalent to this financial cost times the amount of debt. In this case, an increase in the level of indebtedness will be beneficial for the firm, provided that there is a positive leverage ($\sigma > r$).

## CHAPTER VI: APPENDIX B

### Estimation of the Net Financial Wealth of the Business Sector, 1977-82

Equation (1) $nfwp_t = \alpha_{11} + \beta_{11}\ ind\text{-}output_{t-4} + \beta_{12}\ credp_t + \beta_{13}\ spread_t + \beta_{14}\ nfwp_{t-1}$

| | |
|---|---|
| Jarque-Bera Test for normality | 0.464562 |
| Probability | 0.792723 |

Breusch-Godfrey Serial Correlation LM Test:

| | | | |
|---|---|---|---|
| F-statistic | 1.460964 | Probability | 0.259716 |
| Obs*R-squared | 3.520054 | Probability | 0.172040 |

Test Equation:
Dependent Variable: RESID
Method: Least Squares
Date: 09/29/05 Time: 19:17

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 2268.684 | 7210.571 | 0.314633 | 0.7569 |
| ind-output(-4) | -17842.26 | 32354.40 | -0.551463 | 0.5885 |
| Credp | 0.045071 | 0.073090 | 0.616656 | 0.5456 |
| Spread | 3979.800 | 8234.107 | 0.483331 | 0.6350 |
| nfwp(-1) | 0.114776 | 0.119640 | 0.959346 | 0.3508 |
| RESID(-1) | -0.372140 | 0.289738 | -1.284401 | 0.2162 |
| RESID(-2) | -0.400498 | 0.283352 | -1.413427 | 0.1756 |

| | | | |
|---|---|---|---|
| R-squared | 0.146669 | Mean dependent var | 2.92E-12 |
| Adjusted R-squared | -0.154507 | S.D. dependent var | 2270.037 |
| S.E. of regression | 2439.109 | Akaike info criterion | 18.67515 |
| Sum squared resid | 1.01E+08 | Schwarz criterion | 19.01874 |
| Log likelihood | -217.1018 | F-statistic | 0.486988 |
| Durbin-Watson stat | 1.799926 | Prob(F-statistic) | 0.809074 |

Source: own estimation based on the econometric results of equation (1)

White Heteroskedasticity Test:

| | | | |
|---|---|---|---|
| F-statistic | 4.771580 | Probability | 0.004543 |
| Obs*R-squared | 17.22960 | Probability | 0.027805 |

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 09/29/05 Time: 19:22
Sample: 1977:1 1982:4
Included observations: 24

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 2.08E+08 | 1.27E+08 | 1.631547 | 0.1236 |
| ind-output(-4) | -1.83E+09 | 1.09E+09 | -1.675365 | 0.1146 |
| Ind-output(-4)^2 | 3.90E+09 | 2.35E+09 | 1.662984 | 0.1171 |
| credp | 916.2526 | 1484.693 | 0.617132 | 0.5464 |
| credp^2 | -0.014188 | 0.023071 | -0.614949 | 0.5478 |
| spread | -91917336 | 76849699 | -1.196066 | 0.2502 |
| spread^2 | 5.45E+08 | 2.60E+08 | 2.094842 | 0.0536 |
| nfwp(-1) | -106.1188 | 215.0668 | -0.493422 | 0.6289 |
| nfwp(-1)^2 | -0.025054 | 0.026972 | -0.928904 | 0.3676 |

| | | | |
|---|---|---|---|
| R-squared | 0.717900 | Mean dependent var | 4938357. |
| Adjusted R-squared | 0.567447 | S.D. dependent var | 6789387. |
| S.E. of regresión | 4465297. | Akaike info criterion | 33.74157 |
| Sum squared resid | 2.99E+14 | Schwarz criterion | 34.18334 |
| Log likelihood | -395.8988 | F-statistic | 4.771580 |
| Durbin-Watson stat | 2.144499 | Prob(F-statistic) | 0.004543 |

Source: own estimation based on the econometric results of equation (1)

## CHAPTER VI: APPENDIX B

### Estimation of the Net Worth of the Business Sector, 1977-82

Equation (2) $nwp_t = \alpha_{21} + \beta_{21}$ ind-output$_{t-4} + \beta_{22}$ spread$_t + \beta_{23}$ nwp$_{t-1}$

| | |
|---|---|
| Jarque-Bera Test for normality | 0.542457 |
| Probability | 0.762442 |

Breusch-Godfrey Serial Correlation LM Test:

| | | | |
|---|---|---|---|
| F-statistic | 0.476723 | Probability | 0.628433 |
| Obs*R-squared | 1.207310 | Probability | 0.546809 |

Test Equation:
Dependent Variable: RESID
Method: Least Squares
Date: 09/29/05 Time: 18:58

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -9510.539 | 16181.04 | -0.587758 | 0.5640 |
| ind-output(-4) | -9789.959 | 35662.73 | -0.274515 | 0.7868 |
| credp | 177.7061 | 8597.730 | 0.020669 | 0.9837 |
| spread | 0.089632 | 0.144662 | 0.619596 | 0.5433 |
| nfwp(-1) | -0.237235 | 0.303896 | -0.780648 | 0.4452 |
| RESID(-1) | -0.215827 | 0.289831 | -0.744666 | 0.4661 |

| | | | |
|---|---|---|---|
| R-squared | 0.050305 | Mean dependent var | 1.73E-11 |
| Adjusted R-squared | -0.213500 | S.D. dependent var | 2460.825 |
| S.E. of regression | 2710.820 | Akaike info criterion | 18.86021 |
| Sum squared resid | 1.32E+08 | Schwarz criterion | 19.15472 |
| Log likelihood | -220.3225 | F-statistic | 0.190689 |
| Durbin-Watson stat | 1.856843 | Prob(F-statistic) | 0.962257 |

Source: own estimation based on the econometric results of equation (2)

White Heteroskedasticity Test:

| | | | |
|---|---|---|---|
| F-statistic | 4.868081 | Probability | 0.004581 |
| Obs*R-squared | 15.17045 | Probability | 0.018972 |

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 09/29/05 Time: 19:04
Sample: 1977:1 1982:4
Included observations: 24

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 4.74E+08 | 4.17E+08 | 1.137550 | 0.2711 |
| ind-output(-4) | -3.09E+09 | 1.38E+09 | -2.237680 | 0.0389 |
| Ind-output(-4)^2 | 6.66E+09 | 2.94E+09 | 2.265027 | 0.0369 |
| credp | -9547529. | 85773667 | -0.111311 | 0.9127 |
| credp^2 | 3.07E+08 | 3.03E+08 | 1.013068 | 0.3252 |
| spread | -1977.831 | 6812.514 | -0.290323 | 0.7751 |
| spread^2 | 0.008446 | 0.026486 | 0.318884 | 0.7537 |

| | | | |
|---|---|---|---|
| R-squared | 0.632102 | Mean dependent var | 5803342. |
| Adjusted R-squared | 0.502256 | S.D. dependent var | 7893227. |
| S.E. of regression | 5568749. | Akaike info criterion | 34.14173 |
| Sum squared resid | 5.27E+14 | Schwarz criterion | 34.48533 |
| Log likelihood | -402.7008 | F-statistic | 4.868081 |
| Durbin-Watson stat | 1.949761 | Prob(F-statistic) | 0.004581 |

Source: own estimation based on the econometric results of equation (2)

## CHAPTER VI: APPENDIX B

### Estimation of Assets under Judicial Supervision ('concurso'), 1977-81

Equation (3) $assbkr_t = \alpha_1 + \beta_1\ lendr_t + \beta_2\ lever_t$

| | |
|---|---|
| Jarque-Bera Test for normality | 1.218046 |
| Probability | 0.543882 |

Breusch-Godfrey Serial Correlation LM Test:

| | | | |
|---|---|---|---|
| F-statistic | 0.478343 | Probability | 0.631137 |
| Obs*R-squared | 1.255234 | Probability | 0.533863 |

Test Equation:
Dependent Variable: RESID
Method: Least Squares
Date: 09/29/05 Time: 19:40

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 0.146031 | 0.707280 | 0.206468 | 0.8399 |
| lendr | 0.011930 | 0.092052 | 0.129603 | 0.8990 |
| lever(-3) | 0.100062 | 0.510126 | 0.196151 | 0.8478 |
| RESID(-1) | -0.300741 | 0.313085 | -0.960573 | 0.3557 |
| RESID(-2) | -0.165976 | 0.352451 | -0.470918 | 0.6461 |
| R-squared | 0.073837 | Mean dependent var | | -4.24E-16 |
| Adjusted R-squared | -0.234884 | S.D. dependent var | | 0.497725 |
| S.E. of regression | 0.553099 | Akaike info criterion | | 1.893367 |
| Sum squared resid | 3.671016 | Schwarz criterion | | 2.138430 |
| Log likelihood | -11.09362 | F-statistic | | 0.239172 |
| Durbin-Watson stat | 1.800992 | Prob(F-statistic) | | 0.910746 |

Source: own estimation based on the econometric results of equation (3)

White Heteroskedasticity Test:

| | | | |
|---|---|---|---|
| F-statistic | 0.118308 | Probability | 0.973384 |
| Obs*R-squared | 0.644978 | Probability | 0.957937 |

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 09/29/05 Time: 19:42
Sample: 1977:4 1981:4
Included observations: 17

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 0.707040 | 1.787235 | 0.395605 | 0.6993 |
| lever(-3) | 0.690126 | 2.684783 | 0.257051 | 0.8015 |
| lever(-3)^2 | 0.245499 | 0.984687 | 0.249317 | 0.8073 |
| lendr | 0.036276 | 0.059958 | 0.605032 | 0.5564 |
| lendr^2 | -0.011932 | 0.023666 | -0.504183 | 0.6233 |
| R-squared | 0.037940 | Mean dependent var | | 0.233158 |
| Adjusted R-squared | -0.282747 | S.D. dependent var | | 0.258235 |
| S.E. of regression | 0.292473 | Akaike info criterion | | 0.619038 |
| Sum squared resid | 1.026484 | Schwarz criterion | | 0.864101 |
| Log likelihood | -0.261823 | F-statistic | | 0.118308 |
| Durbin-Watson stat | 2.508576 | Prob(F-statistic) | | 0.973384 |

Source: own estimation based on the econometric results of equation (3)

# SOURCES AND BIBLIOGRAPHY

## SOURCES AND BIBLIOGRAPHY

***OFFICIAL DOCUMENTS*:**


Boletín Semanal, Ministry of Economy of Argentina, several annually issues 1976-81

Boletín Estadístico, The Central Bank of Argentina, several monthly issues, 1976-81

Circulars, Resolution of the Central Bank of Central of Argentina, 1976-81

Memoria Anual del Banco Central The Central Bank of Argentina, annual issues 1976 - 1982

Manual del Analista de Control, The Central Bank of Argentina.

Argentine Economic Development, Ministry of Economy, April 1976-December 1980

Country Report: Argentina, Economic Commission for Latin America (ECLA), United Nations, Washington, D. C., several issues, 1976-81

Política Económica y Proceso de Desarrollo: La Experiencia en Argentina entre 1976 y 1981, Naciones Unidas, Comisión Económica para América Latina, Oficina de Buenos Aires, 1983

Economic Memorandum on Argentina, The World Bank, Washington D. C. (1984)

International Financial Statistics, International Monetary Fund, annual issues 1977-81

National Congress of Argentina, National Laws, No. 20520; 21495 21526 and 21572

Bancos Privados Nacionales, 1ra. Convención, Lineamientos Generales para un Sistema Financiero (Buenos Aires, 1983).

Banco Mundial, Informe sobre el Desarrollo Mundial 1989. Los sistemas financieros y el desarrollo (Washington D. C. 1989)

Boletín Semanal, Ministerio de Economía de Argentina, May 10, 1982.

Estudios, Estadísticas de la evolución económica de Argentina, 1913-1984, Instituto de Estudios Económicos sobre la Realidad Argentina y Latinoamericana (IERAL), Fundación Mediterránea, Córdoba, Argentina, Julio-Septiembre, Año IX, No. 39, 1986

Knowledge for Development, World Development Report, No 1998/99, The World Bank 1998.

Radcliffe Committee ''Report of the Committee on the Working of Monetary System''. Radcliffe Report, her Majesty`s Stationery Office, London 1959.

***INTERVIEWS*:**

Adolfo C. Díz, President of the Central Bank of Argentina, 1976-81.

Roberto Alemann, Minister of Economy of Argentina, 1982

Ricardo Lopez-Murphy, Minister of Economy, 2001

José Luis Machinea, President of the Central Bank of Argentina 1985-89; Minister of Economy of Argentina 1999-2000

***NEWSPAPERS AND MAGAZINES*:**

Ambito Financiero, National Newspaper of Argentina.
Date: Thursday 30 April 1992, p.21

Clarín, National Newspaper of Argentina.
Dates: Thursday 29, May 1980, p.12
24 January 1980, p.8
Tuesday 1st April 1980, p.13
Thursday 4, December 1980, p.10

Convicción, Weekly Magazine of Argentina.
Date: Sunday 27, April 1980, p.12

La Prensa, National Newspaper of Argentina.
Date: Monday 24 April 1980, pp.10-11

La Razón, National Newspaper of Argentina.
Date: Monday 31, May 1980, p.7
Monday 31, May 1980, p.13

***WORLD WIDE WEB:***

Iván Petrella, ''El fin de los errores groseros'', Digital Article
*www. lanacion. com.ar/nota.asp/nota_id=1154185*

Javier Millet ''Argentina y su Pasado'', Digital Article
*www. espahoy.com/ ensayos/ argentina y su_pasado*

Angus Maddison, Updated Statistics of the World Economy
*www.ggdc.net/ maddison/ Historical.../horizontal-file_03-2007.xls*

''Nunca Más'' Report. Comisión Nacional de Desaparición de Personas - CONADEP
*www.desaparecidos.org/arg/conadep/nuncamas/nuncamas.html*

***BOOKS AND ARTICLES:***

O. Altimir and J. V. Sourrouille, ''Los instrumentos de promoción industrial en la postguerra'', Desarrollo Económico, (1966) vol. 6 y 7.

E.I. Altman, Corporate Financial Distress: A complete guide to predicting, avoiding and dealing with bankruptcy risk (New York 1983).

G. Akerlof "The Market for Lemons", Quarterly Journal of Economics, August 1970, 84, pp.488-500.

A. A. Arnaldo, "Seis Meses de Política Monetaria Argentina: Junio-Neviembre 1977", Instituto de Estudios de la Realidad Argentina y Latinoamericana, 1978 mimeo.

A. A. Arnaudo "Las Enseñanzas de la Crisis Financiera", Novedades Económicas, 1983, No. 3, p. 30

A. A. Arnaudo, Cincuenta Años de Política Financiera Argentina (1934-1983), El Ateneo (Buenos Aires 1987).

A. A. Arnaudo, "Efectos Monetarios Domésticos de la Fuga de Capitales. El Caso de la Crisis Financiera Argentina de 1980", Revista de Economía y Finanzas, separata, 1990, 1st. y 2sd. semestres.

A. Arnaudo ''El Sistema Financiero'', Nueva Historia de la Nación Argentina, t. 8: La Argentina del Siglo XX, Editorial Planeta, Buenos Aires, 2001

A. A. Arnaudo and R. Conejero, "Anatomía de las Quiebras Bancarias de 1980", Desarrollo Económico, vol. 24, Jan-Mar 1985, pp. 605-616.

A. A. Arnaudo, and A. M. Navarro, "El Comportamiento del Mercado Financiero en Condiciones de Libertad y Apertura Externa", 1988, mimeo.

R. H. Arriazu, "Mercados Informales de Crédito", X Jornadas de Economía y Sector Externo, The Central Bank of Argentina, 10 Apr. 1988

R. H. Arriazu, A. Leone and R. Lopez Murphy "Politicas Macroeconomicas y Endeudamiento Privado. Argentina 1974-1983", (1984) mimeo.

J. K. Arrow, "An extension of the basic theorem of classical economics". Proceeding of the Second Berkeley Symposium on Mathematical Studies and Probabilities, J. Neyman ed., (Berkeley, 1951) pp. 507-532.

K. Arrow, "Limited knowledge and economic analysis", American Economic Review, March 1974, LXIV, pp. 1-10.

K. J. Arrow ''The organisation of economic activity: Issues pertinent to the choice of market versus non-market allocation'', in The Analysis and Evaluation of Public Expenditure. The PPB System, Vol 1, Joint Economic Council of United States. 91 Congress, 1st Session, 1969, p. 48.

J. K. Arrow "Toward a Theory of Price Adjustment", in The Allocation of Economic Resources, (Stanford 1959).

H. Baer and D. Klingebiel, “Systemic Risk When Depositors Bear Losses: Five Case Studies”, in Banking, Financial Markets and Systemic Risk, Vol 7 of Research in Financial Services Private and Public Policy, G.G. Kaufman (ed.), 1995, pp.195-302

D. Azpiazu, R. Bisang and B. Kosacoff, ‘’Dos estudios sobre el caso Argentino (1973/84), Documento de Trabajo, CEPAL, No. 22, Buenos Aires, 1987a.

D. Azpiazu, R. Bisang and B. Kosacoff, ‘’Perfil y comportamiento de las empresas exportadoras de manufacturas’’, Documento de Trabajo, CEPAL No. 6, Buenos Aires, 1987b.

E. L. Bacha "Growth with Limited Supplies of Foreign Exchange: A Reappraisal of the Two-Gap Model" in M. Syrquin, L. Taylor and L. Westphal (eds.) Economic Structure and Performance: Essays in Honor of Hollis B. Chenery, (New York 1984), pp.263-80.

E. L. Bacha "A Three-Gap Model of Foreign Transfers and the GDP Growth Rate in Developing Countries", Journal of Development Economics, April 1990, 32(2), pp.279-96.

N. Barletta, M. Blejer and L. Landau, “Economic Liberalisation and Stabilisation Policies in Argentina, Chile and Uruguay: Applications of the Monetary Approach to the Balance of Payments”, The World Bank, 1983
T.J.T Baliño, “Determinantes de la Tasa de Interés Argentina 1977-79”, Monetaria, Apr.-Jun. (1980), vol.III, Nro. 2.

T.J.T Baliño, “Evolución de las Tasas de Interés en la Argentina. Un Análisis de Series Temporales”, Series de Estudios Técnicos Banco Central de la República Argentina, Dec. 1981.

T. J. T. Baliño, "The Argentine Banking Crisis of 1980", Working Paper WP/87/77, International Monetary Fund, Nov 1987.

E. Baltensperger and H. Milde, “Predictability of reserve demand, information costs and portfolio behaviour of commercial banks”, Journal of Finance, (1976), No. 31 (3), pp. 835-43.

R. Barry Johnston and V. Sundararajan (Eds.), Sequencing Financial Sector Reforms. Country. Experiences and Issues, International Monetary Fund, Washington D.C. 1999

R. Bates and A. O. Krueger (Eds.), Political and Economic Interactions in Economic Policy Reform (Cambridge, Mass1993).

G. Benston and C. W. Smith, “A transaction cost approach to the theory of financial intermediation”, Journal of Finance (1976) No. 31, pp. 215-31.

J. Berlinski “Trade Policies and Industrialisation”, in S. Teitel (Ed.) Towards a New Development Strategy For Latin America (Washington D.C 1992).

J. Berlinski and D. M. Schydlowsky “Argentina”, in B. Belassa (Ed.) Development Strategies in Semi-Industrial Economies (Washington D.C. 1982).

S. Berensztein and H. Spector ‘’Business, Government and Law’’, in G. Della Paolera and A. Taylor, A New Economic History of Argentina, (2003), pp. 324-368

B. S. Bernanke, “Bankruptcy, Liquidity and Recession”, American Economic Review, May 1981, No. 71 (2), pp. 155-159.

B. Bernanke “Non Monetary Effects of the Financial Crisis in the Propagation of the Great Depression”, American Economic Review, June 1983, 73, pp.257-76.

B. Bernanke and M. Gertler, “Agency Costs, Net Worth and Business Fluctuations, American Economic Review, March 1989, 79, 1, pp.14-31.

B. Bernanke and M. Gertler, “Financial Fragility and Economic Performance”, Quarterly Journal of Economics, 1990, pp.87-114.

M. I. Blejer, “Money and the Nominal Rate of Interest under Rapid Inflation: An Empirical Test,” Journal of Political Economy, June 1978, pp. 529-34.

M. I. Blejer, “Interest-Rate Differentials and Exchange Risk: Recent Argentine Experience,” IMF Staff Papers, June 1982, pp. 270-79.

M. I. Blejer, ‘’Recent Economic Policies of the Southern Cone Countries and the Monetary Approach to the Balance of Payments,” in M. I. Blejer and L. Landau (eds.), Economic Liberalization and Stabilization in Argentina, Chile, and Uruguay: The Monetary Approach to the Balance of Payments, The World Bank, Washington, D.C. 1983, pp. 3-11

A. S. Blinder and J. E. Stiglitz, “Money, Credit Constraint and Economic Activity”, American Economic Review, May 1983, 73 (2), pp. 297-302.

O. Braum and L. Joy “A model of Economic Stagnation: A Case Study of the Argentine Economy”, The Economic Journal, Dec. 1968, vol. 78.

R. A. Brealey and S. C. Myers, Principles of Corporate Finance, McGraw Hill, 1998.

P. Bridel, Cambridge Monetary Thoughts: Development of Saving-Investment Analysis from Marshall to Keynes, New York, 1987.

W, Buiter "Measurement of the Public Sector Deficit and Its Implications for Policy Evaluation and Design", Staff Papers, 1983 vol.30, number 2.

J. Bulow and J. B. Shoven, “The Bankruptcy Decision” Bell Journal of Economics and Management, 1978, 9, pp. 437-456.

C. W Calomaris and R. G Hubbard “Firm Heterogenity, Internal Finance and Credit Rationing”, The Economic Journal, March 1990, 100, 90-104.

C. W. Calomiris and G. Gorton, “The Origins of Banking Panics: Models, Facts, and Bank Regulation”, in R. G. Hubbard (ed.), Information, Capital Markets and Investment, National Bureau of Economic Research, University of Chicago Press (Chicago 1990), pp. 109-73.

G. A. Calvo “Trying to Stabilize: Some Theoretical Reflections based on the Case of Argentina”, in P. Aspe Armella, R. Dornbusch, and M. Obstfeld, Eds., Financial Policies and the World Capital Market: The Problem of Latin American Countries Chicago 1983.

G. A. Calvo “Fractured Liberalism: Argentina under Martinez de Hoz”, Economic Development and Cultural Change, April 1986, pp. 511-33.

G. A. Calvo “Trying to Stabilize: Some Theoretical Reflections based on the Case of Argentina”, in P. Aspe Armella, R. Dornbusch, and M. Obstfeld, Eds., Financial Policies and the World Capital Market: The Problem of Latin American Countries Chicago 1983.

G. A. Calvo “Fractured Liberalism: Argentina under Martinez de Hoz”, Economic Development and Cultural Change, April 1986, pp. 511-33.

A. Canitrot, “La Experiencia Populista de Redistribución de Ingresos”, Desarrollo Económico, 1975, No. 59, vol. 15.

A. Canitrot “La Disciplina como Objetivo de la Política Económica. Un Ensayo sobre el Programa Económico del Gobierno Argentino desde 1976”, Estudios CEDES, 1979, No. 6, vol. 2.

A. Canitrot “El Salario Real y la Restricción Externa de la Economía”, Desarrollo Económico, 1983, No. 91.

D. F. Cavallo and A. H. Petrei, ``Financing Private Business in an Inflationary Context: The Experience of Argentina Between 1967 and 1980'', Journal of Development Economics, 32 (2), April 1981, pp. 169-96

D. F. Cavallo. and A. Peña "Deficit Fiscal, Endeudamiento del Gobierno y Tasa de Inflación en Argentina 1940-1982", Revista de Estudios, (Córdoba, Argentina) June 1984.

G. Caprio (Jr.) and D. Klingebiel, “Bank Insolvency: Bad Luck, Bad Policy or Bad Banking?”, paper presented at the World Bank Annual Bank Conference on Development Economics, Washington, Apr. 25-26, 1996.

A. M. Cerro, “El Efecto de los ‘Shocks’ Monetarios sobre la Tasa de Interés Real y Nominal en Argentina”, VII Jornadas de Economía y Sector Externo, Banco Central de la República Argentina, 1984 mimeo.

H.B. Chenery and A. M. Strout, “Foreign Assistance and Economic Development”, The American Economic Review , (1966) vol. LVI, Sept., pp. 679-733

R. H. Coase ‘The Problem of Social Cost’, Journal of Law and Economics, October 1960, pp. 1-44.

V. Corbo, J. De Melo and J. Tybout “What Went Wrong with the Recent Reforms in the Southern Cone”, Economic Development and Cultural Change, Apr. 1986, Vol. 34, No. 3, A.

R. Cortés Conde, La economía argentina en el largo plazo, Ed. Sudamericana, Buenos Aires, 1996

R. Cortés-Conde “Growth and Stagnation in Argentina”, in S. Teitel (Ed.), Towards a New Development Strategy For Latin America (Washington D.C 1992).

R. Cortés Conde, La economía argentina en el largo plazo, Ed. Sudamericana, Buenos Aires, 1996

R. Cortés Conde, La Economía Política de Argentina en el Siglo XX, Edhasa, Buenos Aires, 2005

A. Cukierman, Inflation, Stagflation, Relative Prices and Imperfect Information, (Cambridge 1984), pp. 23-34

R. E. Cumby and M. Obstfeld, ‘’A Note on Exchange-Rate Expectations and Nominal Interest Rate Differentials: A test of the Fisher Hypotesis’’. Journal of Finance, June 1981, Vol. 36, pp. 697-703

J. M. Dagnino Pastore "Las Tasas de Interés Bajo Distintos Contextos Cambiarios y Financieros", Desarrollo Económico, April-June 1987, No. 27 (105), pp.61-85.

M. Damill and J. M. Fanelli "Notas Metodologicas para el Analisis del Sistema Financiero y del Financiamiento del Deficit Publico", Buenos Aires: Centro de Estudio de Estado y Sociedad, (1986) mimeo.

M. Damill and R. Frenkel "De la apertura a la crisis financiera. Un análisis de la experiencia argentina de 1977 a 1982", Banco Central de la República Argentina, Ensayos Económicos, March 1987, No. 37, pp. 1-105.

H. Davies, ‘’Why Regulate?’’, Henry Thornton Lecture, City University Business School, 4 November 1998.

H. Davies and D. Green, Global Financial Regulation. The Essential Guide, Polity Press, Cambridge, 2008

E. P. Davis, Debt, Financial Fragility and Systemic Risk, (Oxford 1995).

E. C. Del Rey, “Reservas Optimas de un Banco”, III Jornadas de Economía y Sector Externo, Banco Central de la República Argentina (1979), mimeo.

J. De Melo, and J. Tybout, "The Effects of Financial Liberalization on Savings and Investment in Uruguay", Economic Development and Cultural Change, Apr. 1986, Vol.34, No. 3

J. C. De Pablo “El Enfoque Monetario de la Balanza de Pagos en la Argentina: Análisis del Programa del 20 de Diciembre de 1978”, El Trimestre Económico, Abril-Junio, 1982, 1, 2, pp. 641-69.

L. De Riz, Retorno y derrumbe. El último gobierno peronista, Hyspamérica, Buenos Aires (1981)

J. Dermine, Pricing Policy of Financial Intermediaries, (New York 1984).

J. Dermine, “Deposit rates, credit rates and bank capital: The Monti-Klein model revisited”, Journal of Banking and Finance, (1986), No. 10, pp. 99-114.

M. Devereux and F. Schiantarelli, “Investment, Financial Factors and Cash-Flows: Evidence from U. K. Panel Data”, Working Paper, National Bureau of Economic Research, 1989, No. 3116;

M. Dewatripont and J. Tirole, The prudential regulation of banks (Cambridge Mass. 1994).

D. Diamond, “Financial Intermediation and Delegated Monitoring”, Review of Economic Studies, July 1984, 51, pp. 393-414.

D. Diamond and P. Dybvig “Bank Runs, Liquidity and Deposit Insurance”, Journal of Political Economy, Jun. 1983, Vol. 91, pp. 401-419
C. F. Diaz Alejandro “A Note on the Impact of the Devaluation and Distribution Effect”, Journal of Political Economy, 1963, No. 71.

C. F. Díaz Alejandro, ‘’Etapas de la industrialización argentina’’ in M. Brodersohn (ed.), Estrategia de industrialización para la Argentina, Buenos Aire, 1970

C. F. Diaz Alejandro, Essays on the economic history of the Argentine Republic (New Haven 1970).

C. F. Diaz Alejandro “Southern Cone Stabilisation Plans”, in W. R. Cline and W. Sidney Eds, Economic Stabilization in Developing Countries, The Brookings Institution, (Washington 1981).

C. F. Díaz Alejandro "Good-bye Financial Repression, Hello Financial Crash", Journal of Development Economics, 1985, 19, 112:1-24.

A. C. Díz, “La Experiencia Monetaria y Bancaria de la Década del 70”, in Política Monetaria y Banco Central. La Experiencia de los Anos Ochenta, Valores en la Sociedad Industrial, Sep. 1984, Año XII No. 30, pp. 3-10

A. C. Diz “La experiencia monetaria y bancaria de la década del 70”, Política Monetaria y Banco Central. La Experiencia de los Anos Ochenta, Valores en la Sociedad Industrial, Sept. 1994, Ano XII No. 30

G. Di Tella “Argentina’s Economy under a Labour-based Government 1973-76 in R. Dornbusch and G. Di Tella (eds.), The Political Ecoonomy of Argentina 1946-83, (Macmillian Press 1989)

G. Di Tella and D.C.M. Platt (eds.) The Polictical Economy of Argentina 1880-1946, (Macmillian Press 1986)

G. Di Tella and R. Dornbusch, The Political Economy of Argentina 1946-83 (Oxford 1989).

G. Di Tella and M. Zymelman, Los ciclos económicos argentinos, EUDEBA, (Buenos Aires 1967);

A. Dorfman, Cincuenta años de industrialización en la Argentina, 1930-80, Solar Ed., Buenos Aires (1983).

R. Dornbusch, “Stabilization Policies in Developing Countries: What have we learned”, World Development, Sept. 1982, No. 10, pp. 702-8.

R. Dornbusch “Remarks on the Southern Cone”, IMF Staff Papers, March 1983.

R. Dornbusch “Argentina since Martinez de Hoz”, Working Paper National Bureau of Economic Research, 1984, No. 1466.

R. Dornbusch and J. C. De Pablo, Deuda Externa e Inestabilidad Macroeconómica en la Argentina, Editorial Sudamericana, Buenos Aires 1988.

J. Drabicki and A. Takayama "The General Equilibrium Framework of Economic Analysis: stock and flows with special application to macroeconomic model", in Green y Scheykman (Eds.) General Equilibrium Growth and Trade. Essays in Honour of L. Mc. Kenzie, New York 1979.

J. Dreizzen, Fragilidad Financiera e Inflación, Estudios CEDES, 1985

D. Drosdoff, El gobierno de las vascas (1933-56). Tratado Roca-Runciman, Ed. La Bastilla, Buenos Aires, (1972)

O. Eckstein and A. Sinai “The Mechanism of the Business Cycle in the Post-War Era”, in The American Business Cycle: Continuity and Change, R. Gordon ed., 1986, Chicago.

B. J. Eichengreen, Globalizing Capital: a history of the international monetary system, Princeton University, (Princeton, 1996)

D. G. Erro, Resolving the Argentine Paradox, Boulder, Colorado 1993.

E. Fama, Banking in the theory of finance, “What’s different about banks?” Journal of Monetary Economics (1985), No.15, pp. 29-40.

J. M. Fanelli "Ahorro, Inversión y Financiamiento. Una Visión Macroeconómica de la Experiencia Argentina", Ensayos Económicos, The Central Bank of Argentina, Sept 1984.

J. M. Fanelli Desequilibrio macroeconómico, restricciones financieras y políticas de estabilización, Universidad Nacional de Buenos Aires, Tesis de Doctorado, (Buenos Aires 1988)

J. M. Fanelli "Topicos de Teoria y Politica Monetaria", Serie Docente, CIEPLAN, Santiago August 1991, No.5.

J. M. Fanelli and R. Frenkel “La Argentina y el Fondo en la Decada Pasada”, in EL FMI, el Banco Mundial y la crisis latinoamericana, Sistema Económico Latinoamericano (Ed.), México, 1984

J. M. Fanelli and R. Frenkel ”Un marco de consistencia para el análisis del ajuste y el cambio estructural en América Latina: Metodología y hechos estilizados”, Documento CEDES, No 44, Buenos Aires 1990

J. M. Fanelli and R. Frenkel ’Macro-policies for the Transition from Stabilization to Growth’’, Documento CEDES, Nro. 87, Buenos Aires 1993

J. M. Fanelli, R. Frenkel and G. Rozenwurcel “Growth and Structural Reform. Were We Stand?”, Doumento CEDES, Buenos Aires 1990, No. 57

U. Fasano Filho, Currency Substitution and Liberalization: The Case of Argentina, (Aldershot 1986).

S. M. Fazzari, R. G. Hubbard and B. C. Petersen “Financing Constraints and Corporate Investment”, Broking Papers on Economic Activity, 1988, 1, pp.141-206.

S. Fazzari and D. B. Papadimitrou, Financial Conditions and Macroeconomic Performance, M. E. Sharpe, 1982.

E. Feldman, "La Crisis Financiera Argentina, 1980-82. Algunos Comentarios", Desarrollo Económico, Oct.-Dec. 1983, No. 91, Vol. 23, pp. 449-451

E. Feldman and J. F. Sommer Crisis Financiera y Endeudamiento Externo (Buenos Aires 1984).

R. B. Fernández, "La Crisis Financiera Argentina, 1980-82", Desarrollo Económico, April-June 1983, No. 89, Vol.23, pp. 78-95

R. B. Fernández, "La Crisis Financiera Argentina, 1980-82. Réplica", Desarrollo Económico, Oct.-Dec.1983, No. 91, Vol. 23

R. B. Fernández “The Expectations Management Approach to Stabilisation in Argentina during 1976-82”, World Development, 1985, vol. 13, No. 8, pp. 871-892.

R.B. Fernández and C.A. Rodriguez, Inflación y Estabilidad (Buenos Aires 1982).

I. Fisher “The Debt-Deflation Theory of Great Depressions”, Econometrica, October 1933, 1, pp.337-57.

X. Freixas and J.C. Rochet, Microeconomics of Banking (Cambridge Mass. 1999).

R. Frenkel, “Desiciones de Precios en Alta Inflación”, Desarollo Económico, (1979) vol. 19, No. 75, pp. 21-69.

R. Frenkel, "El Desarrollo Reciente del Mercado de Capitales en Argentina", Desarrollo Economico, Jul.-Sep.1980, pp.215-248

R. Frenkel, "La apertura financiera externa: el caso argentino" in Ricardo French-Davis (edit.), Relaciones Financieras Externas y su Impacto en las Economías Latinoamericanas, Fondo de Cultura Económica, México, 1983, pp. 125-56

R. Frenkel, “Inflacion, Shocks y Mark-Up. Argentina 1975-1982”, Ensayos Económico, June 1984, No. 30.

R. Frenkel, “Inflacion, Shocks y Mark-Up. Argentina 1975-1982”, Ensayos Económico,1984, No. 30, June

R. Frenkel, J. M. Fanelli and J. Sommer, “El Proceso de Endeudamiento Externo Argentino”, Documento CEDES, No. 2, 1988

M. Friedman and A. Schwartz A Monetary History of the United States, 1867-1960, National Bureau of Economic Research, (Princeton 1963).

B. M. Friedman, “Debt and Economic Activity in the United States”, in The Changing Roles of Debt and Equity in Financing U.S. Capital Formation, B. M. Friedman ed., University of Chicago Press, Chicago, 1982.

B. M. Friedman, “Implications of Corporate Indebtedness for Monetary Policy”, NBER Working Paper n.3266, 1990.

M. J. Fry, Money, Interest, and Banking in Economic Development, The John Hopkins University Press, 2nd ed., Baltimore 1995.

E. Gaba, “La Reforma Financiera Argentina: lecciones de una experiencia”, Ensayos Económicos, Sep. 1981, No. 19

V. F. García, “Tasas de Interés, Política Monetaria y Gasto Público”, Centro de Estudios Monetarios Latinoamericanos, México 1984.

P. Gerchunoff “Peronist Economic Policies 1946-55”, G. Di Tella and R. Dornbusch, The Political Economy of Argentina 1946-83 (Oxford 1989).

M. Gertler “Financial Capacity and Output Fluctuations in an Economy with Multi-Period Financial Relationships”, Review of Economics Studies, 1992, 59, pp. 455-472.

M. Gertler and R. G. Hubbard, “Financial Factors in Business Fluctuations”, in R. G. Hubbard (ed.), Asymmetric Information, Capital Markets and Investment, University of Chicago Press, Chicago 1990. pp. 35-67

L. Giorgio "El Sistema Financiero Argentino. Evolución y Estructura Actual" Monetaria, Centro de Estudios Monetarios Latinoamericanos January-March 1988, vo XI, Nro. 71.

B. Greenwald and J.E. Stiglitz, “Asymmetric Information and the New Theory of the Firm: Financial Constraint and Risk Behavior”, American Economic Review, May 1990,vol. 80, no.2

A. Guadagni “Economic Policy during Illia’s Period in Office, 1963-6”, G. Di Tella and R. Dornbusch, The Political Economy of Argentina 1946-83 (Oxford 1989).

J. Gurley and E. Shaw "Financial Aspects of Economic Development", American Economic Review, September 1955, 45, pp.515-538.

J. Gurley and E. Shaw Money in a Theory of Finance, The Brookings Institution, Washington D.C 1960.

A. Gutowski, A. A. Arnaudo, A. Scharrer and H. Eckart (eds.) Financing Problems in Developing Countries: Proceeding of a Conference Held by the International Economic association in Buenos Aires, Argentina, St. Martin's Press (New York , 1989)

S. J. Grossman “An introduction to the theory of rational expectations under asymmetric information”, The Review of Economic Studies, (1981), No.48, pp. 541-559.

S. J. Grossman and J. E. Stiglitz, “On the impossibility of informationally efficient markets”, American Economic Review (1980) 70, pp. 393-408.

S. J. Grossman and J. E. Stiglitz, “Information and competitive price systems”, American Economic Review, (1986), No. 66, pp. 246-53.

O. Hart, “Incomplete Contracts”, in Allocation, Information and Markets, The New Palgrave Dictionary ed., Macmillan 1989, Hong Kong.

J. G. Haubrich and R.G. King, “Banking and Insurance”, Journal of Monetary Economics, 1990, 26, pp. 361-386.

R. Hausman and M. Gavin “The Roots of Banking Crisis: The Macroeconomic Context”, paper presented at the Inter-American Development Bank Conference on Banking Crisis in Latin America, held in Washington, 6-7 Oct. 1995.

R. G. Hawtrey, Currency and Credit, Longman, 1919.; R. G. Hawtrey, Trade and Credit, Longman, 1928.

D. Heyman, ‘’Las fluctuaciones de la industria manufacturera argentina, 1950-78’’, Cuadernos de la CEPAL, No.4 1980.

G.H. Hempel and D.G. Simonson, Bank financial management: Strategies and techniques for a changing industry (New York 1991).

D. Hester “On the Theory of Financial Intermediation", De Economist, 1994, 142, No. 2.

J. R. Hicks ‘’Mr. Keynes and the Classics: A Suggested Interpretation’’, Econometrica, April 1937.

J. R. Hicks Value and Capital: an inquiry into some fundamental principles of economic theory, 2dn ed., Oxford 1946.

J. R. Hicks Capital and Growth, Oxford 1965.

R. Hilferding, Finance Capital: A Study of the Latest Phase of Capitalist Development, , Routledge and Kegan Paul, 1981, translated by Morris Watnick and Sam Gordon of Das Finanzkapital. Eine Studie uber jungste Entwicklung des Kapitalismus Vienna 1910.

A. O. Hirschman, Strategy of Economic Development, (New Haven 1958).

A. O. Hirschman “The Political Economy of Import-Substitution Industrialisation in Latin America”, The Quarterly Journal of Economics, Feb 1968, vol. LXXXII No. 1., pp.1-32.

T. Ho and A. Saunders, “The determinant of bank interest rate margins: Theory and empirical evidence”, Journal of Financial and Quantitative Analysis, (1981), No.16 (4), pp. 581-600.
1988).

B. Holmstrong and J. Tirole, “The Theory of the Firm”, in Handbook of Industrial Organization, R. Schamalensee and R. Willing (Eds.), 1990, sections 3 and 4.

T. Hoshi, A. Kashyap and D. Scharfstein, “The Role of Banks in reducing the Costs of Financial Distress in Japan”, Working Paper, National Bureau of Economic Research, 1990, No. 3435.
C. F. Huang and R. Litzenberg, Foundations for financial economics, (Amsterdam, 1988); J. E. Ingersoll (Jr.), Theory of financial decision making, New York, 1987

R. G. Hubbard, Information, Capital Markets and Investment, University of Chicago Press (Chicago 1990)

J. E. Ingersoll (Jr.), Theory of financial decision making (New York 1987).

A. J. de Juan, “The Root of Banking Crisis: Microeconomic Aspects and Supervision and Regulation’’, in R. Hausman and L. Rojas-Suarez (eds.), Banking Crisis in Latin America, Interamerican Development Bank, (Washington D.C., 1996), pp. 95-116

D. Jaffee and T. Russell “Imperfect Information and Credit Rationing”, Quarterly Journal of Economics, November 1976, 90, pp.651-66.

G. Kaminsky and G. Reinhart, “The Twin Crises: The Causes of Banking and Balance of Payments Problems”, Discussion Paper, No. 544, Board of Governors of the Federal Reserve System, Mar. 1996.

J. Katz, ‘’Una interpretación del largo plazo del crecimiento industrial argentino’’, Desarrollo Económico, (1969), 8, No. 32, pp. 511-42

J. Katz and B. Kosacoff, El Proceso de Industrialización en Argentina: Evolución, Retroceso y Prospectiva, CEPAL, Buenos Aires, 1989.

J. M. Keynes The General Theory of Employment, Interest and Money, McMillan 1936.

C. Kindleberger, Manias, Panics and Crashes. A history of financial crises, Macmillan (London, 1978)

D. Kim and A. Santomero, “Risk in banking and capital regulation”, Journal of Finance, 35(5), pp. 1235-44.

R. G. King and R. Levine, "Finance and Growth: Schumpeter might be right", Country Economic Department, World Bank, 1993

F. H. Knight Risk, Unceratinty and Profit (Boston 1921).

B. Kosacoff, ‘’El Proceso de Industrialización en Argentina’’, Documento de Trabajo, CEPAL, Buenos Aires, 1984.

B. Kosacoff and D. Azpiazu La Industria Argentina: Desarrollo y Cambios Estructurales, Buenos Aires 1989.

A. O. Krueger “The Political Economy of the Rent-Seeking Society”, The American Economic Review, 1974 LXIV (3), pp.291-303.

A. Krueger, Liberalization Attempts and Consequences, Ballinger (Cambridge MA, 1978)

A. O. Krueger “Government Failure in Development”, Working Paper National Bureau of Economic Research, 1990, No. 3340.

P. Krugman and L. Taylor “Contractionary Effects of Devaluation”, Journal of International Economics, 1978, No. 8.

P. Krugman, “International Debt Strategies in an Uncertain World”, in G. W. Sith and J. T. Cuddington, International Debt and The Developing Countries, The World Bank 1985, Washington.

P. Krugman, “Financing vs. Forgiving a Debt Overhang”, Journal of Development Economics, 29, 1988, pp. 253-268.

F. Larrain, "Financial Liberalization in Uruguay: Success or Failure?, CDP Discussion Paper, Feb. 1987, No.1987-1

G. Le Fort, “Financial Crisis in Developing Countries and Structural Weaknesses of the Financial System”, IMF Working Paper, 1989, WP/89/33.

L. Leiderman and M. Blejer "The Term Structure of Interest Rates During a Financial Reform: Argentina 1977-81, Journal of Development Economics, April 1987, No. 25 (2) pp. 285-299.

L. Leiderman and M. I. Blejer (eds.) Financial Factors in Economic Stabilization and Growth, Cambridge University Press, 1996

H. E. Leland and D. H. Pyle, “Informational asymmetries, financial structure and financial intermediation”, The Journal of Finance, (1977), 32, pp. 371-87.

J. Lindgren, G. Garcia and M. I. Saal (eds), Bank Soundness and Macroeconomic Policy, International Monetary Fund, (Washington D.C., 1996)

A. Leijonhuvud On the Keynesian Economics and the Economics of Keynes: A Study of Monetary Theory, New York, 1967.

A. Leijonhuvud Information and Coordination: Essays in Macroeconomic Theory, Oxford University Press, New York, 1981.

J. Locke, Further Considerations Concerning Raising the Value of Money, 2sd. ed. A. & J. Churchil 1695.

J. Lucangelli and J.V. Sourrouille, ‘’Apuntes sobre la historia reciente de la industria argentina’’, Boletín Informativo Techint, No. 219, 1985.

A. Maddison, Monitoring The World Economy 1820-1992, Development Centre of the Organisation for Economic Co-operation and Development, OECD, París, 1995

R. Mallon and J. V. Sourrouille, Economic Policy Making in a Conflict Society: the Argentine Case (Cambridge, Mass. 1975).

N.G. Mankiw, ‘’The Allocation of Credits and Market Collapse’’, Quarterly Journal of Economics, 101, August 1985, pp. 455-70.

M. Marfán, Un modelo macro-financiero para una economía con restricción externa, Notas Técnicas CIEPLAN, 1987, No. 106

C. Massad and R. Zahler (eds.), Deuda interna y estabilidad financiera. Volumen I and II: Aspectos analíticos, CEPAL/PNUD, Grupo Editor Latinoamericano, (Buenos Aires, 1987).

D. J. Mathieson, “Inflation, Interest Rates, and the Balance of Payments during the Financial Reform: The Case of Argentina”, Staff Papers, IMF, December 1982, pp. 815-826

R. I. McKinnon, Money and Capital in Economic Development: Brookings Institution, (Washington D.C 1973).

R. I. McKinnon (ed.), Money and Finance in Economic Growth: essays in Honor of Edward Shaw, Marcel Dekker, new York 1976.

R. I. McKinnon ''Financial Policies'', in Policies for Industrial Progress in Developing Countries, J. Cody, H. Hughes and D. Wall (eds.), Oxford University Press for the World Bank, 1980, pp. 93-120.

R. I. McKinnon, ''Financial repression and the Liberalisation Problem within Less-Developed Countries'', in The World Economic Order: Past and Prospects, S. Grassman and E. Lundberg (eds.), McMillan 1981, pp. 365-386.

R. I. McKinnon, ''The Order of Economic Liberalization: Lesson from Chile and Argentina'', Cornegie-Rochester Series on Public Policy, 17 Autumn 1982, pp. 159-186.

R. I. McKinnon "Financial Liberalization in Retrospect: Interest Rate Policies, in LDCs, in The State of Development Economics, Ed. by Gustav Ranis and Paul Schultz (Cambridge, Massachussetts 1988).

R. I. McKinnon, Financial Liberalization and Economic Development: A Reassesment of Interest-Rate Policies in Asia and Latin America, Oxford Review of Economic Policy, 1989, Vol.6, No. 4.

R.I. McKinnon and D. Mathieson, How to Manage a Repressed Economy, Essays in International Finance 145. Princeton N.J.: International Finance Section, Department of Economics, Princeton University, 1981

H. P. Minsky "A Theory of Systematic Fragility", in Financial Crises: Institutions and Markets, Altman y A. Sametz (Eds.), (New York 1967).

H. P. Minsky, “Capitalist Financial Process and the Instability of Capitalism”, Journal of Economic Issues, 1980, vol. XIV, no. 2

H. P. Minsky ''Can it happen again?, Essays on Instability of Finance, New York 1982.

F. S. Mishkin, “The Household Balance Sheet and the Great Depression” Journal of Economic History, December 1978, 38, pp. 918-937.

F. S. Mishkin, “Anatomy of a Financial Crisis”, NBER Working Paper, Dec. 1991, No. 3934.

F. S. Mishkin, “Asymmetric Information and Financial Crises: A Historical Perspective”, in R. G. Hubbard (ed.), Financial Markets and Financial Crises, NBER University of Chicago Press, 1991, Chicago.

F. S. Mishkin, “Preventing Financial Crises: An International Perspective”, Working Paper, National Bureau of Economic Research, Feb. 1994, No.4636

F. S. Mishkin “Financial Policies and the Prevention of Financial Crises in Emerging Markets Countries”, NBER Working Paper, 2001 No. 8087.

F. Modigliani and M. H. Miller “The Cost of Capital, Corporation Finance and the Theory of Investment”, American Economic Review, June 1958, pp.261-97.

L. E. Molho, “Interest Rates, Saving and Investment in developing Countries: A Re-examination of the McKinnon-Shaw Hypothesis”, International Monetary Fund Staff Papers, 33, 1 March, p. 111. pp. 90-116.

E. Montanaro, "The Banking and Financial System in Argentina: The History of a Crisis", in Gardener, Edward P.(ed.) The future of financial system and services: Essays in honor of Jack Revell, St. Martin's Press, (New York, 1990) pp. 72-84

M. Monti, “Deposit, credit and interest rate determination under alternative bank objectives”, In Mathematical methods in investment and finance, G. P. Szego and K. Shell eds., (Amsterdam, 1972).
R. R. Nelson and S. G. Winter An Evolutionary Theory of Economic Change, Cambridge, Mass. 1982.

S. C. Myres and N. S. Majluf, “Corporate Financing and Investment Decisions When Firms Have Information that Investors Do Not Have”, Journal of Financial Economics, June 1984, 13, pp. 187-221.

R. R. Nelson, ‘’Why do Firms Differ, and How does Matter?’’, Strategic Journal of Management, vol. 12, 1991.

J. J. Nogués “La Economía Política del Proteccionismo y la Liberalización en la Argentina”, Desarrollo Económico,1988, vol. 28 No. 110.

D. North ‘’Institutions, Transaction Costs and Economic Growth’’, Economic Inquiry, 25, July 1987, pp. 419-428.

A. Noya, El Sistema Financiero Argentino, Ed. Difusión (Buenos Aires, 1970)

J.H.G. Olivera “Money, Prices and Fiscal Lags: A Note on the Dynamic of Inflation”, Banca Nazionale del Lavoro Quarterly Review, 1967, vol. 20, No. 28.

J. Panettieri, Síntesis Histórica del Desarrollo Industrial Argentino (Buenos Aires 1967).

A. Petrecolla, ‘’Sustitución de importaciones y formación del capital (la industria textil, 1920-1940); Torcuato Di Tella Documento del Centro de Investigaciones Económicas, Sep. 1968

A. Petrecolla “Unbalance Development, 1958-62”, in G. Di Tella and R. Dornbusch, The Political Economy of Argentina 1946-83 (Oxford 1989).

A. H. Petrei and J. R. Tybout “Financial Adjustments of Industrial Firms in Argentina during 1976-1981, paper submitted to the Econometric Society Latin American Regional Meeting, Santiago, mimeo, July 1983.

A. H. Petrei and J. R. Tybout, “How the Financial Statements of Argentine Firms Reflected Satbilization and Reform Attempts during 1976-81”, World Bank Staff Working Papers, 1984, no. 706.

A. Porto “Un Modelo Simple sobre el Comportamiento Macroeconomico Argentino en el Corto Plazo”, Desarrollo Económico, 1975, No. 59, vol. 15.

R. Prebish, La Crisis del Desarrollo Argentino: de la frustración al crecimiento vigoroso (Buenos Aires 1986).

E. Prisman, M. Slovin and M. Sushka, “A general model of the banking firm under condition of monopoly, uncertainty and recourse”, Journal of Monetary Economics, (1986), No.17 (2), pp. 293-304.

D. Pyle, “On the theory of financial intermediation”, Journal of Finance, (1971), No.26 (3), pp. 737-47.

L. Randall, An Economic History of Argentina in the Twentieth Century (New York 1978).

C. M. Reinhart (Ed.), Accounting for Saving. Financial Liberalization, Capital Flows and Growth in Latin America and Europe, Inter-American Development Bank, Washington D. C. 1999

C. A. Rodriguez “The Argentine Stabilisation Plan of December 20th” World Development, Sept. 1982, No. 10.

C. A. Rodriguez and L. Sjaastad “El Atraso Cambiario en Argentina: Mito o Realidad?, Ensayos Económicos, March 1980, No. 13.

S. Ross, “The economic theory of agency: the principal’s problem”, American Economic Review, May 1973, 63 (2), pp. 134-139.

M. Rougier, ‘’El financiamiento bancario a las empresas industriales argentinas. Antecedentes y orígenes del Banco de Crédito Industrial Argentino’’, Estudios Interdisciplinarios de América Latina, 1999, 10, 2, Julio-Septiembre, Tel Aviv.

M. Rougier, Industria, finanzas e instituciones en la Argentina: La experiencia del Banco Nacional de Desarrollo, Editorial Universidad de Quilmes, Buenos Aires, 2004

J. Sachs, “Theoretical Issues in International Borrowing”, Princeton Papers in International Finance, 1984, no. 53.

J. Sachs, “The Debt Overhang of Developing Countries”, in De Macedo and Findlay eds., Diaz Memorial Volume, The Wider Institute, 1988.

M. Santo “Algunas Reflexiones sobre las Políticas de Liberalización en el Cono Sur de Fines de los 70”, Ensayos Económicos,1982, No. 40, pp. 1-53

R. Sautu “The Role of the Public Sector in the Industrialisation of Argentina” in The World Bank Economic Memorandum on Argentina (Washington D.C. 1984).

J. Schvarzer, “Cambios en el Liderazgo Industrial Argentino en el Período de Martinez de Hoz”, Desarrollo Económico, October-December 1983, vol. 23 no. 91.

L. Sjaastad “Argentine Economic Policy 1976-81” in G. Di Tella and R. Dornbusch, The Political Economy of Argentina 1946-83 (Oxford 1989).

L. Sjaastad “Failure of Economic Liberalism in the Cone of Latin America”, The World Economy, 1983, vol. 16, No.1, pp. 5-26.

P. Samuelson, “The Effects of Interest Rate Increases on the Banking Behaviour”, American Economic Review, (March 1945), pp. 81-98.

T. Sargent and N. Wallace, “Some Unpleasant Monetarist Arithmetic”, in B. Griffith and G. Good, eds. Monetarist in the United Kingdom, 1984, Macmillan London, pp.15-41.

B. D. Smith, “Private Information, Deposit Interest Rates and the Stability of the Banking System”, Journal of Monetary Economics, (November 1984), No. 14, pp. 293-318.

E.D. Sosa de Balzano, “Tasas de Interés: Junio 1977 a Junio 1982”, Ensayos Económicos, Banco Central de la República Argentina, (June 1985), No. 34.

J. V. Sourrouille, B. Kosacoff and J. Lucangelli, Transnacionalización y política económica en la Argentina, Centro Editor de América Latina, Buenos Aires, 1985.

B. Stanhouse, “Commercial bank portfolio behaviour and endogenous uncertainty”, Journal of Finance, (1986), No. 41(5), pp. 1103-14.

J. A. Schumpeter, The Theory of Economi Development: An Inquiry into Profits, Capital, Credit, Interest, and Business Cycle, Translated by Redvers Opie, Harvard university Press, Cambridge, Mass. 1934.

E. Shaw Financial Deepening in Economic Development, (New York 1973).

A. Smith, An Inquiry into the Nature and Cuases of the Wealth of Nations, W. Strahan & T. Cadell, 1776.

J. Piekarz, "Compensacion de Reservas de Efectivo Mínimo, la Cuenta de Regulación Monetaria, el Deficit Cuasi-Fiscal del Banco Central y la Transformación del Sistema Financiero", Desarrollo Economico, Sep. 1984

J. E. Stiglitz and A. Weiss "Credit Rationing in Markets with Imperfect Information", American Economic Review, June 1981, 71 (3).

J. E. Stiglitz, “Information and Capital Markets”, in W.F. Sharpe and C. Cootner, eds. Financial Economics: Essay in Honor of Paul Cootner, 1982, Prentice Hall, pp. 118-158.

J. E. Stiglitz, “The Causes and Consequences of the Dependence of Quality on Price”, Journal of Economic Literature, (March 1987), vol. XXV, pp. 1-48.

J. E. Stiglitz, "Why Financial Structure Matters", Journal Of Economics Perspectives, 1988, 2 (4), pp. 26

J. E. Stiglitz “Markets and Development”, National Bureau of Economic Research, working paper,1989b, No. 2961.

J. E. Stiglitz “Government, Financial Markets and Development”, National Bureau of Economic Research, Working Paper, 1991, No. 3669

J. E. Stiglitz and A. Weiss, “Banks as Social Accounts and Screening Devices for the Allocation of Credits”, NBER Working Paper (1988) No. 2710.

J. E. Stiglitz, “Banks vs. Markets as Mechanism for Allocating and Coordinating Investment”, in J. A. Roumasset and S. Barr, eds. The Economic of Cooperation: East Asian Development and the Case for Pro-Market Intervention, (Westview Press, 1992), pp.15-38.

J. E. Stiglitz, Chapter 6, Whither Socialism?, Cambridge, Mass. 1994), pp. 83-107.

J. E. Stiglitz and B. Greenwald, Towards a New Paradigm in Monetary Economics, Cambridge University Press (Cambridge, 2003).

N. Stokey, ‘’Human Capital, Product Quality and Growth’’, Quarterly Journal of Economics, 56, 2, May 1991, pp. 587-616.

V. Sundararajan and T.J.T Baliño, “Issues in Recent Banking Crisis in Developing Countries”, IMF Working Paper, March 1990, p. 36

A. M. Taylor, ‘’Argentina and the World Capital Market: Saving, Investment and Capital Mobility in the Twentieth Century’’, NBER Working Paper 6302, 1997

A. M. Taylor, ‘’Capital Accumulation’’ in G. Della Paolera and A. M. Taylor, A New Economic History of Argentina, 2003, pp. 170-96

J. Tobin, “Money and Economic Growth”, Econometrica, 1965, 33, pp. 671-84.

J. Tobin “A general equilibrium approach to monetary theory”, Journal of Money, Credit and Banking, 1969 no. 1.

J. Tobin “Money and finance in the macroeconomic process, Journal of Money, Credit and Banking, May 1982, vol.68, no.2.

J. Tobin, ”The Commercial Banking Firm: A Simple Model”, Scandinavian Journal of Economics, (1982), No. LXXXIV, 4., pp. 4-23.

J. C. Torre, Los sindicatos en el gobierno 1973-76, Centro Editor de América Latina, Buenos Aires (1983)

R. M. Townsend “Optimal Contracts and Competitive Markets with Costly State Verification”, Journal of Economic Theory, October 1979, 21, pp.265-93.

S. Turnovsky Macroeconomic Analysis and Stabilization Policy. (Cambridge 1981).

J. R. Tybout, “A Firm-Level Chronicle of Financial Crises in The Southern Cone”, Journal of Development Economics, 1986, pp. 371-400.

J. A. Uriarte, “Factores de Expansión y Contracción de los Recursos Monetarios en el Período 1978-1981”, Serie de Información Pública, Banco Central de la República Argentina, 1982, No. 14

M. Urrutia, Financial liberalization a the internal structure of capital markets in Asia and Latin America, United Nations University (Tokyo, 1988)

S. Van Wijnbergen, "Interest Rate Management in LDC's", Journal of Monetary Economics, (Sept. 1983), No. 12, pp. 433-452.

M. Véganzones with C. Winograd, Argentina In The 20th. Century: An Account of A Long Awaited Growth, OECD, 1997, pp. 197-230

A. Velazco “Liberalization, Crisis, Intervention: The Chilean Financial System, 1975-1985”, IMF Working Paper, 1988, WP/88/66 World Bank (1984) Economic Memorandum on Argentina, Washington D. C.

J. Villanueva, ‘’El orígen de la industrialización argentina’’, Desarrollo Económico, (1972), vol.12, pp. 471-76

F. A. Von Hayek, Prices and Production, enlarged edition, Routledge, 1933.

K. Wicksell, Lectures on Political Economy, 2nd. vol, Routledge and Kegan Paul, 1935.

E. Wiesner, “Transaction Cost Economics and Public Sector Rent-Seeking in Developing Countries: Toward a Theory of Government Failure”, Evaluation & Development: The Institutional Dimension, R. Picciotto and E. Wiesner (Eds.), Transaction Publishers, The World Bank, pp. 15-16.

O. E. Williamson, Markets and Hierarchies. Analysis and Antitrust Implications, The Free Press, New York 1975.

O. E. Williamson, The Economic institutions of Capitalism, The Free Press, New York 1985.

S. D. Williamson, “Costly Monitoring, Financial Intermediation and Equilibrium Credit Rationing”, Journal of Monetary Economics, September 1986, 18, pp. 159-179.

S. D. Williamson, “Financial Intermediation, Business Failures and Real Business Cycle”, Journal of Political Economy, December 1997, pp. 1196-1216.

M. A. Véganzones, with C. Winograd, Argentina In The 20th. Century: A Account of A Long Awaited Growth, Development Centre of the Organisation for Economic Co-operation and Development, OECD, París, 1997

J. P. Wogart and S. Marquez, ‘’Trade liberalisation, tariff redundancy and inflation. A methodological exploration applied to Argentina’’, Review of World Economics, 1984, pp. 18-39

R. Zahler "Estrategias Financieras Latinoamericanas: La Experiencia del Cono Sur", Colección Estudios CIEPLAN 1988, No. 23.